

24 Hartwell Avenue
Lexington, Massachusetts 02173
Telephone 617/863-5100

November 1988

THE 35th ANNUAL DRI/McGRAW-HILL SURVEY of PRELIMINARY
PLANS for NEW PLANTS and EQUIPMENT, 1988-90

The business investment boom that has spurred economic growth this year is cooling off. DRI/McGraw-Hill's latest survey of plant and equipment spending points to a marked deceleration for 1989, although 1988 spending projections are even stronger than reported in our spring survey.

The fall survey results indicate that companies plan to raise nominal outlays only 5.8% next year. If this modest increase is implemented, domestic investment by both American and foreign-owned corporations would still total a record \$460.4 billion (Table I).¹

Inflation fears continue to rise, though. Survey respondents anticipate a 4.7% advance in plant and equipment prices next year (Table II), just below the planned investment increase. Given these inflation and spending projections, real (inflation adjusted) capital spending would thus rise roughly 1% in 1989. In the past, however, survey respondents have consistently overstated inflation.

Much of the expected slowdown comes from manufacturers, who plan to cut their spending growth from 15.2% this year to 6.9%. Still, nondurable goods manufacturers intend a healthy 8.7% investment hike, led by strong gains in the chemical, petroleum, and food industries. The 4.8% overall advance among durable goods makers masks robust investment increases within the motor vehicle, nonmetallic mineral, and instrument industries, partially offset by cutbacks in nonelectrical machinery, aircraft, and fabricated metals. The aggregate increase for the nonmanufacturing sector is 5.1%, with only railroads anticipating cuts in 1989.

These are the key findings of DRI/McGraw-Hill's 35th Annual Survey of Preliminary Plans for New Plants and Equipment. Conducted from September to November 1988, the survey drew responses from

1. Tables denoted by Roman numerals appear at the end of this report.

Chart 1
Investment in New Plants and Equipment
All Businesses
(Billions of dollars)

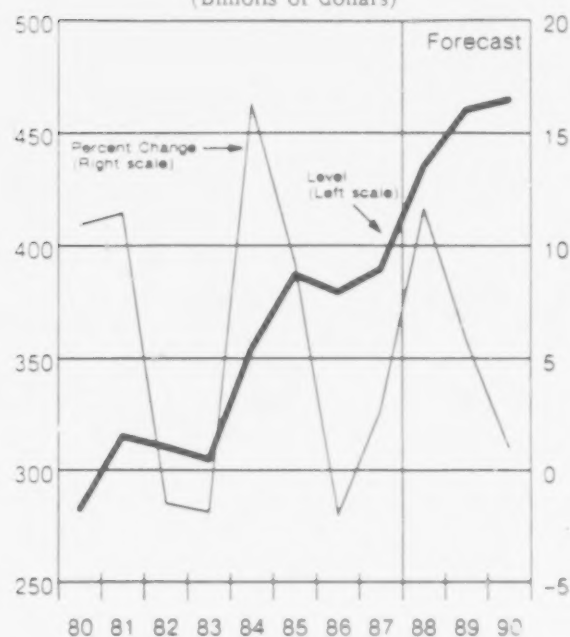
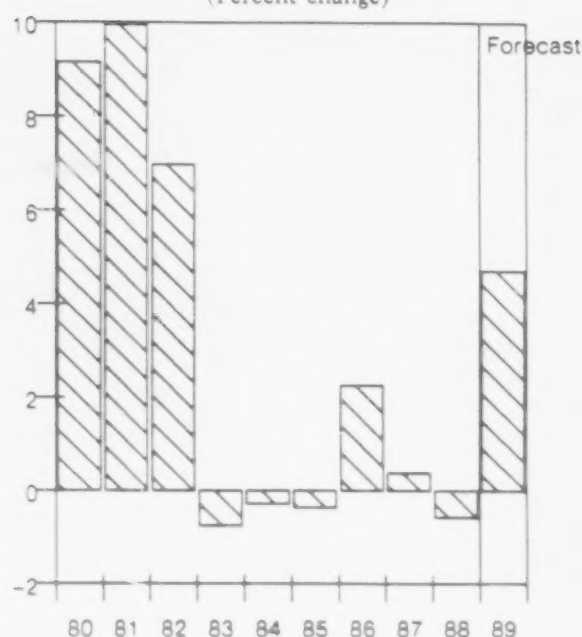


Chart 2
New Plant and Equipment Prices
(Percent change)



387 companies that account for nearly 20% of total plant and equipment spending in the United States (Table IX). Figures in this report have been adjusted to represent spending by all U.S. and foreign-owned companies, and reflect domestic investment only.

UNSUSTAINABLE GROWTH

By all measures, 1988 stands to be a boom year for capital investment, though concentrated in the equipment sector. Despite preliminary evidence that equipment investment slowed sharply from 20.4% in the first half of the year to 5.8% in the third quarter, the volume of backorders suggests that spending growth will be lending support to the economy at least through mid-1989.

Nonresidential construction, which accounts for only 30% of overall investment, remains beset by high vacancy rates. Declines in office, warehouse, store, and electric utility construction—masking increases in drilling activity and factory construction—should hold down nonresidential investment spending through 1990.

Although the 11.7% nominal spending increase for 1988 reported in the current DRI/McGraw-Hill survey more than erases the weakness in 1986-87, it should be noted that capital spending is a lagging indicator

Table 1
Capital Equipment Spending
(Billions of 1982 dollars)

	Quarterly					Annual		
	87:3	87:4	88:1	88:2	88:3	1985	1986	1987
Total Equipment	334.7	332.7	349.4	365.1	370.3	304.0	303.8	319.6
Information Processing & Related Eq	148.0	147.0	155.9	165.0	169.6	119.3	124.9	139.4
Office & Computing Machinery	88.5	89.8	97.4	105.0	107.9	65.0	69.2	82.3
Communication Equipment	35.7	33.8	34.9	35.5	36.4	31.5	32.5	33.9
Scientific & Engineering Inst	12.8	12.6	12.9	13.3	13.7	11.6	12.5	12.6
Photocopy & Related Equipment	11.0	10.8	10.6	11.2	11.5	11.2	10.7	10.7
Industrial Equipment	49.8	51.2	53.0	55.4	57.5	51.3	50.2	49.5
Fabricated Metals	6.9	6.9	7.3	7.5	7.2	8.0	7.6	7.1
Metalworking Machinery	13.9	14.3	14.6	14.5	15.5	14.8	14.6	14.1
Special Industrial Eq	13.1	14.3	15.2	17.0	18.4	12.0	11.8	12.9
General Industrial Eq	15.9	15.8	15.9	16.5	16.4	16.5	16.2	15.4
Transportation Equipment	62.9	59.8	64.8	68.3	66.1	61.5	59.8	59.1
Trucks, Buses & Trailers	28.6	28.7	30.4	30.2	30.5	29.5	26.4	27.7
Autos	18.6	16.4	19.0	20.1	20.2	19.3	18.2	16.3
Aircraft	11.7	11.7	12.4	14.4	12.0	9.9	12.6	12.2
Ships & Boats	2.0	1.2	1.1	1.2	1.2	1.4	1.4	1.3
Railroad Equipment	1.9	1.7	2.0	2.4	2.1	1.4	1.2	1.6
Energy and Related Eq	14.8	15.0	15.1	15.6	15.7	16.7	14.3	14.4
Engines & Turbines	1.3	1.3	1.0	1.2	1.2	1.8	1.5	1.2
Electrical Trans. & Dist. Eq	10.9	10.9	11.1	11.3	11.6	11.6	10.5	10.7
Mining & Oilfield Machinery	2.6	2.9	3.0	3.1	2.8	3.4	2.3	2.5
Miscellaneous Equipment	61.5	61.5	62.4	62.7	63.3	56.8	56.6	59.4
Furniture & Fixtures	14.3	14.9	14.9	14.9	14.5	13.3	13.5	14.3
Tractors	5.5	5.3	5.6	5.5	5.6	5.0	4.7	5.0
Agricultural Machinery	6.2	6.2	6.4	6.2	6.3	5.8	5.3	5.8
Construction Machinery	9.7	8.9	8.9	9.4	9.4	9.4	9.5	9.1
Service Industry Machinery	7.8	8.2	8.5	8.4	8.6	7.5	7.5	7.9
Electrical Equipment, n.e.c.	7.6	7.7	7.8	7.8	7.9	7.0	7.0	7.5
Other Equipment	10.3	10.3	10.2	10.4	11.0	8.8	9.1	9.8
Annual Rates of Change								
Total Equipment	29.4	-2.4	21.6	19.3	5.8	8.0	-0.1	5.2
Information Processing & Related Eq	46.0	-2.5	26.5	25.5	11.5	18.6	4.7	11.6
Office & Computing Machinery	64.0	6.2	38.6	35.0	11.6	32.4	6.4	18.9
Communication Equipment	32.1	-18.8	13.5	7.1	10.0	7.5	3.3	4.1
Scientific & Engineering Inst	9.0	-6.3	11.5	11.1	13.5	11.6	8.0	0.7
Photocopy & Related Equipment	16.0	-8.9	-6.2	23.1	12.6	-5.0	-4.7	0.3
Industrial Equipment	13.8	11.6	14.9	19.4	15.9	4.3	-2.1	-1.5
Fabricated Metals	-20.0	-1.7	27.8	11.0	-13.5	-1.7	-5.1	-6.1
Metalworking Machinery	-4.9	10.1	9.0	-3.1	31.1	8.0	-1.3	-3.7
Special Industrial Eq	38.3	43.3	28.4	54.4	38.8	3.4	-1.6	9.3
General Industrial Eq	34.4	-3.9	3.5	15.3	-2.8	4.9	-1.8	-5.1
Transportation Equipment	14.7	-18.4	38.2	23.1	-12.3	3.3	-2.7	-1.1
Trucks, Buses & Trailers	10.7	1.4	24.7	-2.6	4.8	7.1	-10.6	5.0
Autos	82.5	-39.4	80.4	24.0	3.0	-6.6	-5.5	-10.5
Aircraft	-55.9	-1.5	24.3	83.1	-51.1	24.4	27.2	-3.0
Ships & Boats	1,487.5	-87.7	-21.5	42.5	-19.1	-21.3	-0.6	-7.4
Railroad Equipment	207.5	-27.3	56.2	144.9	-40.4	-14.8	-11.9	33.5
Energy and Related Eq	16.6	7.7	1.8	14.0	2.0	-1.9	-14.7	0.6
Engines & Turbines	28.8	14.7	-70.6	126.7	11.1	7.6	-16.2	-17.3
Electrical Trans. & Dist. Eq	10.2	-2.6	10.7	7.1	10.7	-1.0	-9.7	2.3
Mining & Oilfield Machinery	42.5	57.1	20.9	12.3	-28.4	-9.0	-30.8	4.6
Miscellaneous Equipment	23.3	0.0	6.0	1.8	3.9	0.4	-0.5	5.1
Furniture & Fixtures	7.8	17.1	1.6	-1.1	-11.3	4.9	1.1	5.9
Tractors	82.9	-14.2	21.2	-5.9	10.7	-15.5	-6.0	7.9
Agricultural Machinery	59.1	-1.5	17.8	-11.3	6.5	-10.8	-8.3	9.7
Construction Machinery	30.2	-28.4	-0.9	24.7	-1.0	10.0	0.5	-4.2
Service Industry Machinery	-6.8	20.4	15.8	-2.8	6.6	3.5	-0.2	4.9
Electrical Equipment, n.e.c.	9.2	5.0	4.9	0.0	1.4	-1.6	0.3	7.0
Other Equipment	36.3	-1.2	-2.0	6.1	28.6	2.6	3.6	8.0

of the economy. So even though operating rates in the nation's factories, mines, and utilities have reached an eight-year high of 84%, demand is due to weaken. The current pace of export gains cannot be sustained and consumer spending will continue to soften as personal income growth weakens.

In addition, inflation stemming from excess demand is still a major concern. Recent increases not only reflect the drought's impact on food prices and the dollar's effect on import prices, but also the increase in operating rates and the decline in unemployment. In response, the Federal Reserve is expected to clamp down again, raising interest rates and therefore dampening overall economic growth. DRI/McGraw-Hill thus expects real GNP growth to slide from 3.8% this year to 2.3% next year.

INFLATION AND SALES

Survey respondents expect an average 4.7% rise in 1989 capital goods prices (Table II); DRI/McGraw-Hill projects an increase of only 1.2%. While fear of an overheating economy may be the cause of this discrepancy, respondents tend to be overly pessimistic about inflation. In November 1987, for example, they predicted a 4.2% rise in plant and equipment prices for 1988; this past spring, the figure was up to 4.4%. DRI/McGraw-Hill, however, looks for a 0.6% decline in prices this year.

Chart 3
Product Prices
(Percent change)

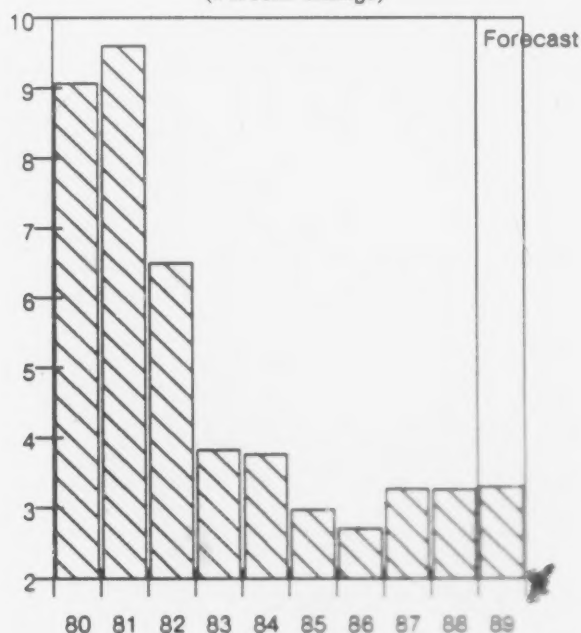


Table 2
Nonresidential Construction
(Billions of 1982 dollars)

	Quarterly					Annual		
	87:3	87:4	88:1	88:2	88:3	1985	1986	1987
Total Structures	128.02	132.11	123.97	125.03	125.43	149.48	129.32	125.52
Buildings & Other	82.30	83.43	79.53	80.92	78.83	89.24	83.46	81.04
Offices	21.98	22.50	21.62	22.51	22.77	28.15	24.77	22.00
Stores & Warehouses	24.90	24.83	22.76	24.03	22.69	25.00	24.40	24.14
Industrial	12.94	12.65	12.25	12.18	11.45	14.95	12.78	12.23
Institutional	9.52	10.42	10.52	10.28	9.79	8.62	8.74	9.74
Educational	2.24	2.61	2.34	1.96	1.84	1.49	1.71	2.43
Religious	2.33	2.21	2.34	2.61	2.24	2.15	2.34	2.29
Hospitals	4.96	5.59	5.84	5.71	5.72	4.98	4.69	5.02
All Other	12.96	13.02	12.38	11.92	12.13	12.52	12.77	12.92
Public Utilities	26.04	27.62	24.60	25.36	27.56	25.08	25.19	25.72
Telephone & Telegraph	7.45	8.02	6.95	6.31	6.76	6.90	7.59	7.49
Mining & Petroleum	19.68	21.06	19.84	18.74	19.04	35.16	20.66	18.76
Annual Rates of Change								
Total Structures	25.6	13.4	-22.4	3.5	1.3	4.0	-13.5	-2.9
Buildings & Other	14.6	5.6	-17.4	7.2	-10.0	12.3	-6.5	-2.9
Offices	11.4	9.9	-14.8	17.4	4.7	17.9	-12.0	-11.2
Stores & Warehouses	16.7	-1.0	-29.4	24.3	-20.6	22.6	-2.4	-1.1
Industrial	41.9	-8.7	-12.1	-2.3	-22.0	18.1	-14.6	-4.2
Institutional	5.6	43.3	3.9	-8.7	-17.7	-5.0	1.4	11.4
Educational	-30.9	86.8	-35.9	-50.2	-22.6	14.8	14.4	42.4
Religious	6.4	-19.0	25.9	54.5	-46.4	9.3	9.0	-2.1
Hospitals	29.3	62.4	18.5	-8.7	0.7	-14.2	-5.7	6.9
All Other	0.9	2.1	-18.5	-13.9	7.3	-6.9	2.0	1.2
Public Utilities	24.9	26.6	-37.0	13.0	39.4	2.8	0.4	2.1
Telephone & Telegraph	16.4	34.2	-43.6	-32.0	31.5	2.8	10.0	-1.4
Mining & Petroleum	89.9	31.1	-21.2	-20.4	6.5	-11.9	-41.2	-9.2

Respondents' estimates may also be high because they take little account of quality improvements in the capital goods they purchase. Their projections thus tend to exceed government estimates, which do adjust for quality enhancement. This difference is particularly important in the case of office and computing equipment: because of technological improvements in computers, the price deflator for office equipment has declined by about 13% annually during the 1980s.

Overall, respondents expect product prices to rise an average 3.3% in 1989. Manufacturers look for a 3.1% price increase (Table II), in combination with a 7.7% jump in sales. If both expectations are realized, real sales would increase 4.6%. In light of the economic slowdown projected for next year, though, this seems somewhat optimistic.

Chart 4
Investment in New Plants and Equipment
All Manufacturing Industries
(Billions of dollars)

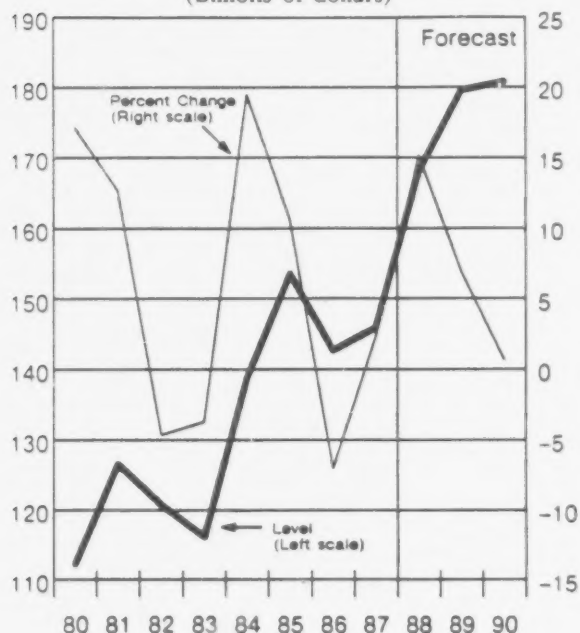
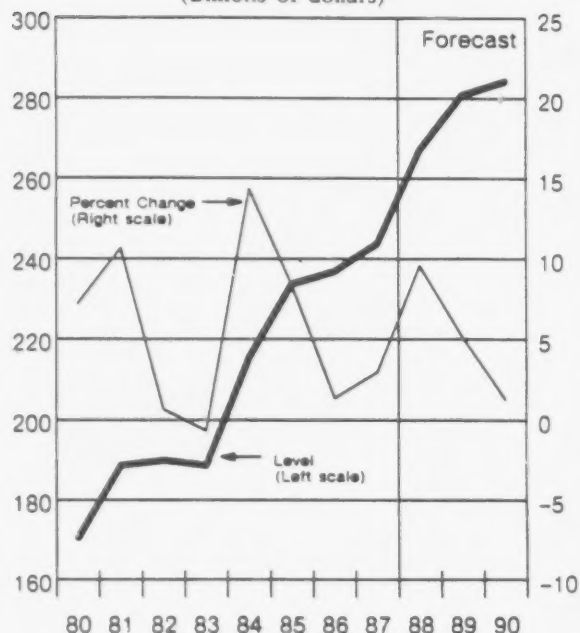


Chart 5
Investment in New Plants and Equipment:
All Nonmanufacturing Industries
(Billions of dollars)



INDUSTRY HIGHLIGHTS

All nondurable goods manufacturers plan to boost investment in 1989. Having closed much of its excess capacity in the early 1980s, the chemical industry was operating at over 88% of capacity in the third quarter. Moreover, the industry posted a \$9.3 billion trade surplus in 1987 and is running well ahead of that pace in 1988. After cutting investment 2.3% in 1987, chemical companies estimate a 24% jump in spending for 1988, followed by another 11.4% gain in 1989.

After modest investment growth in 1986 and 1987, the paper and pulp industry is raising capital outlays an estimated 21.3% this year. Shipments are still on the rise and the industry is running near its preferred operating rate of 98%. Survey respondents intend another 4.8% spending increase for next year, led by paperboard container and converted paper product makers.

With shipments increasing steadily, food and beverage processors report nearly a 20% increase in this year's capital outlays. Despite operating rates well below a preferred 91%, food companies (led by meat and grain mill producers) plan another 6.8% investment boost for 1989.

Table 3
Durables Indicators
(Billions of dollars)

	Quarterly					Annual		
	87:3	87:4	88:1	88:2	88:3	1985	1986	1987
Iron & Steel								
Capacity Utilization Rate (%)	81.0	90.4	85.8	84.8	89.6	67.5	64.2	77.4
Shipments	53.0	59.0	59.1	61.0	61.2	48.1	44.7	51.0
New Orders	55.7	60.9	57.7	62.2	61.1	48.2	45.4	53.9
After-Tax Profits	1.4	1.0	1.5	3.2	NA	-1.3	-3.4	1.4
Nonferrous Metals								
Capacity Utilization Rate (%)	82.3	86.7	83.1	86.8	90.1	80.6	79.0	82.1
Shipments	57.4	65.2	63.7	68.7	72.0	51.8	50.7	56.8
New Orders	60.2	68.9	66.1	70.4	73.5	51.4	50.1	59.4
After-Tax Profits	2.1	0.8	3.2	4.5	NA	-1.0	0.8	1.1
Electrical Machinery								
Capacity Utilization Rate (%)	75.7	76.5	76.9	77.4	78.4	76.5	73.6	75.4
Shipments	214.8	217.8	220.5	224.3	229.8	193.0	195.9	210.4
New Orders	220.2	227.0	220.2	223.0	226.1	200.5	197.9	212.2
After-Tax Profits	10.2	7.9	10.9	13.9	NA	6.9	7.6	9.6
Nonelectrical Machinery								
Capacity Utilization Rate (%)	75.7	76.8	78.7	81.0	82.8	75.7	72.8	74.5
Shipments	222.8	225.1	233.2	245.5	254.1	214.9	208.0	216.7
New Orders	229.7	229.8	239.6	256.2	263.6	214.3	202.5	221.1
After-Tax Profits	11.1	14.5	12.1	11.8	NA	9.7	6.6	10.2
Autos, Trucks & Parts								
Capacity Utilization Rate (%)	76.5	80.0	77.8	82.5	82.0	83.2	80.2	79.2
Shipments	184.9	201.8	201.2	216.3	217.4	188.6	192.0	196.3
After-Tax Profits	8.1	9.5	13.3	15.5	NA	9.1	8.4	10.6
Aerospace								
Shipments	104.9	103.0	106.9	104.4	109.0	90.4	100.8	103.4
New Orders	122.9	117.3	132.5	131.5	139.3	99.5	106.4	116.2
After-Tax Profits	4.7	4.5	4.9	4.8	NA	3.3	3.1	4.6
Fabricated Metals								
Capacity Utilization Rate (%)	77.9	79.9	81.9	82.8	83.9	78.7	77.7	78.2
Shipments	132.6	134.7	139.0	145.1	142.0	139.6	137.9	135.0
New Orders	136.3	137.3	137.4	142.5	140.7	138.3	137.8	136.4
After-Tax Profits	5.6	5.0	5.9	7.0	NA	3.4	3.2	4.4
Instruments								
Capacity Utilization Rate (%)	79.2	79.3	79.9	80.5	82.4	82.5	79.5	78.9
Shipments	68.0	68.3	69.7	72.7	73.8	61.0	61.9	66.8
New Orders	70.0	68.9	70.5	73.1	72.9	61.5	62.2	67.8
After-Tax Profits	5.4	4.8	6.3	7.1	NA	3.6	1.1	4.6
Stone, Clay & Glass								
Capacity Utilization Rate (%)	80.7	81.4	82.1	82.2	82.1	81.3	82.8	81.8
Shipments	60.7	66.0	62.9	63.2	63.8	55.1	57.3	62.2
New Orders	62.0	65.2	63.2	64.6	64.6	55.8	57.5	62.2
After-Tax Profits	1.9	1.7	0.4	4.0	NA	1.6	2.1	2.9
Note: Shipments and new orders are seasonally adjusted annual rates. Profits are at annual rates but not seasonally adjusted.								

Petroleum refiners continue their investment rebound, with capacity utilization remaining in the 85-87% range. Although initially destabilizing, the 1986 plunge in crude oil prices has eventually been beneficial because low feedstock costs eventually fattened profit margins. After slashing investment 33% in 1986 and another 4.4% in 1987, refiners plan a 24% surge in spending in 1988 and another 7.4% gain in 1989. Because this estimate includes exploration by integrated oil companies, however, it is probably optimistic given the recent weakness in crude oil prices.

After extensive restructuring, the textile industry is now operating just below its preferred rate of 96%. Although profits are a bit softer than in 1987, shipments are up this year. Capital spending will rise an estimated 13.5% in 1988, but only 1% in 1989.

Durable goods manufacturers have more modest investment plans than nondurable manufacturers. Following a strong 8.7% advance this year, aggregate investment among durable goods producers is

Table 4
Nondurables Indicators
(Billions of dollars)

	Quarterly					Annual		
	87:3	87:4	88:1	88:2	88:3	1985	1986	1987
Chemicals								
Capacity Util. Rate (%)	83.6	84.8	85.3	86.3	88.4	78.0	79.7	82.8
Shipments	215.8	222.9	228.7	236.7	245.1	196.9	196.8	213.1
After-Tax Profits	22.5	10.7	25.5	24.8	NA	9.5	12.9	16.6
Paper								
Capacity Util. Rate (%)	96.6	95.7	95.4	94.5	94.9	88.7	92.2	94.4
Shipments	112.7	117.0	117.9	122.8	126.9	93.3	97.9	110.3
After-Tax Profits	6.3	6.0	7.0	8.8	NA	2.9	3.3	5.5
Rubber & Plastics								
Capacity Util. Rate (%)	87.8	88.4	88.5	88.1	88.0	86.7	85.0	87.2
Shipments	78.4	83.8	86.4	89.6	92.9	71.4	73.4	80.5
After-Tax Profits	3.0	3.5	3.6	3.4	NA	1.6	2.1	3.3
Petroleum								
Capacity Util. Rate (%)	84.6	85.4	87.2	86.1	85.5	80.6	85.3	84.8
Shipments	130.3	125.8	121.5	127.7	126.4	179.2	125.2	124.7
After-Tax Profits	15.3	-0.7	20.0	16.4	NA	12.7	8.8	10.9
Food & Beverage								
Capacity Util. Rate (%)	80.4	79.8	80.6	79.7	80.3	80.3	80.3	80.0
Shipments	328.1	331.9	340.9	352.9	364.5	301.5	308.5	324.9
Textiles								
Capacity Util. Rate (%)	94.2	92.8	91.1	89.5	89.5	83.3	88.0	92.0
Shipments	58.5	57.7	57.3	59.5	59.7	53.2	55.3	57.5
After-Tax Profits	2.2	2.1	1.6	1.9	NA	1.2	1.7	1.9
Note: Shipments are at seasonally adjusted annual rates. Profits are at annual rates but not seasonally adjusted.								

projected to rise just 4.8% next year. The heaviest spending industry, electrical machinery, projects a 12.5% increase this year, dwindling to a scant 1.4% in 1989. While this year's shipments, profits, and new orders are running well ahead of last year's pace, the industry's capacity utilization is nearly 10 percentage points below its preferred rate. Electrical industrial apparatus and communications equipment makers foresee actual spending cuts in 1989.

Although healthy shipments, profits, new orders, and operating rates all point toward at least modest capital spending gains, nonelectrical machinery makers report a puzzling 12.8% cut in 1989 budgets. Special industry and computer and office machinery segments intend large decreases. For computer makers, though, recent capital stock additions, lower operating rates, and somewhat weaker backorders do portend a slowdown in spending.

Following an estimated 9.7% investment cutback in 1988, the motor vehicle industry appears ready to bounce back in 1989: respondents report investment plans 34.3% above this year's levels. Here, higher operating rates, stronger sales, and fatter profit margins have translated into bullish spending plans. Still, the industry should be cautious, given its excess capacity.

Elsewhere in durable goods, the steel, nonferrous metals, instruments, nonmetallic minerals, and "other" durables industries all plan spending increases in 1989. Only the aircraft and fabricated metals industries anticipate modest cuts.

Within the nonmanufacturing sector, communications companies report a 4.7% investment increase for the upcoming year, probably due to the growing profitability of long-distance telephone companies. The communications industry estimates that investment is already up 7.7% this year.

Still saddled with excess generating capacity from the late 1970s, the electric utility industry cut capital investment 6.7% in 1987. Respondents report another 6% decrease in 1988, followed by a marginal 0.3% rebound in 1989. The fate of the nuclear sector remains mired in controversy and huge cost overruns.

Gas utilities, in contrast, intend capital investment gains of 12.1% this year and 2.1% next year. The mining industry's projection of a 6.1% increase in 1989 is largely the result of higher spending in coal companies, and despite spending cuts in oil and gas extraction companies.

Table 5
Nonmanufacturing Indicators

	Quarterly					Annual		
	87:3	87:4	88:1	88:2	88:3	1985	1986	1987
Mining								
Bituminous Coal Production								
--Thousand short tons	927,572	975,180	944,100	911,664	991,232	878,930	886,022	915,201
Refiners' Acquisition Price of Oil--Dollars	19.01	17.78	15.45	16.02	14.24	26.66	14.76	17.77
Railroads								
Revenue Freight Ton-Miles								
--Billions of ton miles	969.2	994.8	988.8	1,005.2	NA	875.8	874.5	948.0
New Freight Cars, Unfilled Orders								
--Thousands of cars	5.5	6.7	12.7	17.3	NA	1.8	2.7	5.4
Airlines								
Passenger-Miles Revenue--Billions	452.1	376.4	385.4	430.4	NA	331.7	363.5	404.2
Passenger Load Factor--(%)	66.0	58.5	59.2	63.9	NA	61.4	60.2	62.2
Electric Utilities								
Electricity Output								
--Billions of kw-hr	2,630	2,570	2,697	2,646	2,779	2,470	2,487	2,570
Electric Utility Revenues								
--Millions of dollars	180,338	147,908	156,048	149,412	NA	149,373	152,977	155,869
Gas Utilities								
Natural Gas Sales--Trillion btu	6,740	11,658	16,964	8,994	NA	12,724	11,034	10,812
Gas Utility Revenues								
--Millions of dollars	24,950	49,314	72,954	NA	NA	63,316	51,223	44,828
Communications								
Commercial Construction								
--Billions of 1982 dollars	46.9	47.3	44.4	46.5	45.5	53.2	49.2	46.1
Consumer Spending on Financial Services								
--Billions of 1982 dollars	101.6	102.5	103.7	105.0	106.1	95.5	99.7	102.2
Trade and Services								
Retail Sales--Billions of dollars, SA	1,538.7	1,530.7	1,564.6	1,592.7	1,608.7	1,366.2	1,437.3	1,507.4
Consumer Spending On Personal & Business Services	367.3	369.0	373.2	375.8	377.7	336.0	353.4	366.6
Medical Services								
--Billions of 1982 dollars	270.9	274.0	276.9	279.5	283.2	240.9	251.5	268.2

INDEX OF TABLES

TABLE	PAGE
I Plans for Capital Spending	12
II Inflation Expectations	13
III Sales Expectations	13
IV Real Sales Expectations	14
V Capital Spending in the Petroleum Industry	14
VI Capital Spending in the Chemical Process Industry	15
VII Capital Spending in the Energy Industries	15
VIII Detailed Industry Data	16
IX Survey Sample Size	18

Note: The "other durables" category includes lumber, furniture, jewelry, toys, and transportation equipment excluding autos and aerospace. "Other nondurables" includes apparel, tobacco, printing and publishing, and leather. The "trade and services" category includes retail and wholesale trade, banking, holding companies, insurance companies, hotels, laundries, construction companies, and personal and business services. "Other transportation" consists primarily of trucking companies.

Table I
Plans for Capital Spending
(Billions of dollars)

Industry	Level				Percent Change		
	1987	1988	1989	1990	1988	1989	1990
Blast Furnaces, Steel Works	4.70	6.37	6.39	6.20	35.7	0.2	-2.9
Nonferrous Metals	2.16	2.55	2.79	2.74	17.9	9.5	-1.7
Electrical Machinery	15.29	17.19	17.43	16.82	12.5	1.4	-3.5
Nonelectrical Machinery	13.85	14.93	13.02	14.29	7.8	-12.8	9.7
Motor Vehicles	11.91	10.76	14.45	14.12	-9.7	34.3	-2.3
Aircraft	3.54	3.75	3.68	3.72	5.8	-2.0	1.0
Fabricated Metals	4.02	4.25	4.06	4.45	5.7	-4.3	9.6
Instruments (a)	2.35	2.70	2.98	3.10	14.6	10.5	4.1
Stone, Clay & Glass	3.37	3.47	4.27	4.19	3.0	23.2	-2.0
Other Durables (a)	9.83	11.20	11.78	11.09	14.0	5.1	-5.9
TOTAL DURABLES	71.02	77.17	80.85	80.72	8.7	4.8	-0.2
Chemicals	16.42	20.36	22.67	23.83	24.0	11.4	5.1
Paper	9.01	10.93	11.46	10.76	21.3	4.8	-6.1
Rubber & Misc Plastics (b)	3.52	3.82	4.16	4.38	8.4	8.9	5.3
Petroleum	17.13	21.19	22.75	25.20	23.7	7.4	10.8
Food Including Beverages	11.03	13.21	14.11	13.07	19.7	6.8	-7.3
Textiles	1.95	2.22	2.24	2.36	13.5	1.0	5.5
Other Nondurables	15.82	19.14	21.38	20.52	21.0	11.7	-4.1
TOTAL NONDURABLES	74.88	90.86	98.77	100.13	21.3	8.7	1.4
ALL MANUFACTURING	145.90	168.03	179.62	180.84	15.2	6.9	0.7
Mining	11.38	13.39	14.20	14.29	17.6	6.1	0.6
Railroad	5.93	7.22	6.70	6.70	21.8	-7.2	0.0
Air Transportation (b)	6.33	7.56	8.61	9.21	15.7	13.9	7.0
Other Transportation	6.40	7.25	9.34	9.22	13.3	28.9	-1.3
Electric Utilities	31.64	29.75	29.85	29.32	-6.0	0.3	-1.8
Gas & Other Utilities	13.26	14.86	15.17	15.60	12.1	2.1	2.9
Communication	32.19	34.68	36.30	35.71	7.7	4.7	-1.6
Trade & Services (b)	136.46	152.36	160.57	164.19	11.7	5.4	2.3
ALL NONMANUFACTURING	243.78	267.06	280.74	284.24	9.5	5.1	1.2
ALL BUSINESS	389.69	435.09	460.36	465.08	11.7	5.8	1.0

a. Historical data for the instruments series is taken from the Census Bureau's Survey of Manufacturers. Data for 1987 was estimated using the November 1987 DRI/McGraw-Hill Survey. The other durables category is redefined to have components' sum equals total durables.

b. DRI estimates.

Table II
Inflation Expectations
(Percent change)

Industry	Expected %Change, 1988-89	
	Plant & Equipment Prices	Product Prices
Blast Furnaces, Steel Works	4.3	2.3
Nonferrous Metals	3.1	-10.0
Electrical Machinery	3.7	2.6
Nonelectrical Machinery	4.9	3.4
Motor Vehicles	3.1	0.0
Aircraft	4.7	3.1
Fabricated Metals	4.5	5.4
Instruments	2.3	2.1
Stone, Clay & Glass	4.5	3.9
Other Durables	4.6	4.9
TOTAL DURABLES	4.1	2.5
Chemicals	5.0	4.6
Paper	4.7	3.7
Rubber & Misc Plastics	4.8	2.6
Petroleum	4.3	1.6
Food Including Beverages	4.6	2.9
Textiles	5.5	-0.3
Other Nondurables	5.0	5.6
TOTAL NONDURABLES	4.7	3.6
ALL MANUFACTURING	4.4	3.1
Mining	4.3	6.7
Railroad	4.0	3.5
Air Transportation	4.5	NA
Other Transportation	4.3	1.9
Electric Utilities	4.7	1.9
Gas & Other Utilities	4.2	5.2
Communication	2.6	1.7
Trade & Services	5.6	3.8
TOTAL NONMANUFACTURING	4.8	3.5
ALL BUSINESS	4.7	3.3

Table III
Sales Expectations
(Billions of dollars)

Industry	1988 Estimated*	1989 Expected	1988-89 % Change
Blast Furnaces, Steel Works	52.9	54.6	3.2
Nonferrous Metals	62.9	69.2	10.0
Electrical Machinery	226.9	252.6	11.3
Nonelectrical Machinery	241.8	259.3	7.2
Motor Vehicles	213.4	213.4	0.0
Aircraft	113.5	118.5	4.4
Fabricated Metals	148.2	163.2	10.1
Instruments	74.2	80.2	8.0
Stone, Clay & Glass	70.8	73.2	3.5
Other Durables	184.4	217.8	18.1
TOTAL DURABLES	1,389.0	1,502.0	8.1
Chemicals	231.8	252.5	8.9
Paper	118.5	124.6	5.2
Rubber & Misc Plastics	82.0	86.3	5.2
Petroleum	130.3	131.7	1.1
Food Including Beverages	346.7	376.4	8.6
Textiles	55.9	58.4	4.6
Other Nondurables	237.7	258.3	8.7
TOTAL NONDURABLES	1,202.8	1,288.4	7.1
ALL MANUFACTURING	2,591.8	2,790.4	7.7
Mining	NA	NA	8.6
Railroad	NA	NA	4.0
Air Transportation	NA	NA	NA
Other Transportation	NA	NA	10.6
Electric Utilities	NA	NA	3.4
Gas Utilities	NA	NA	-14.5
Communication	NA	NA	4.2
Trade & Services	NA	NA	10.2

* Estimates based on spring survey.

Table IV
Real Sales Expectations
 (Billions of 1988 dollars)

Industry	1988 Estimated	1989 Expected	1988-89 % Change
Blast Furnaces, Steel Works	52.9	53.4	0.9
Nonferrous Metals	62.9	76.9	22.2
Electrical Machinery	226.9	246.2	8.5
Nonelectrical Machinery	241.8	250.7	3.7
Motor Vehicles	213.4	213.4	0.0
Aircraft	113.5	115.0	1.3
Fabricated Metals	148.2	154.8	4.5
Instruments	74.2	78.6	5.9
Stone, Clay & Glass	70.8	70.5	-0.4
Other Durables	184.4	207.6	12.6
TOTAL DURABLES	1,389.0	1,467.0	5.6
Chemicals	231.8	241.4	4.1
Paper	118.5	120.2	1.5
Rubber & Misc Plastics	82.0	84.1	2.6
Petroleum	130.3	129.6	-0.5
Food Including Beverages	346.7	365.8	5.5
Textiles	55.9	58.6	5.0
Other Nondurables	237.7	244.5	2.9
TOTAL NONDURABLES	1,202.8	1,244.3	3.4
ALL MANUFACTURING	2,591.8	2,711.3	4.6
Mining	NA	NA	1.9
Railroad	NA	NA	0.5
Air Transportation	NA	NA	NA
Other Transportation	NA	NA	8.7
Electric Utilities	NA	NA	1.5
Gas Utilities	NA	NA	-19.7
Communication	NA	NA	2.5
Trade & Services	NA	NA	6.4

Table V
Capital Spending in the Petroleum Industry
 (Millions of dollars)

Function	Level				Percent Change		
	1987	1988	1989	1990	1988	1989	1990
Exploration and Production	21,199	25,780	26,813	32,474	21.6	4.0	21.1
Refining	1,907	2,193	2,326	2,517	15.0	6.1	8.2
Petrochemicals	1,012	1,509	1,893	1,753	49.1	25.5	-7.4
Transportation (a)	1,805	2,447	2,878	2,868	35.6	17.6	-0.4
Marketing	4,352	4,896	5,137	5,146	12.5	4.9	0.2
Other (b)	4,269	5,025	5,622	5,638	17.7	11.9	0.3
TOTAL	34,544	41,849	44,669	50,396	21.1	6.7	12.8

a. Includes oil pipelines; does not include gas pipelines.
 b. Includes coal mining.

Table VI
Capital Spending in the Chemical Process Industry
 (Billions of dollars)

Industry	1987	1988	1989	1990
Chemicals	16.42	20.36	22.67	23.83
Petrochemicals (a)	1.01	1.51	1.89	1.75
Paper	9.01	10.93	11.46	10.76
Rubber & Misc Plastics	3.52	3.82	4.16	4.38
Stone, Clay & Glass	3.37	3.47	4.27	4.19
Petroleum Refining	1.91	2.19	2.33	2.52
Nonferrous Metals	2.16	2.55	2.79	2.74
Coal Products	0.34	0.61	0.71	0.67
Food Including Beverages	2.98	3.57	3.81	3.53
Textiles	0.39	0.44	0.45	0.47
Other CPI	1.99	2.41	2.69	2.58
TOTAL CPI	43.10	51.86	57.23	57.42

a. Petrochemical expenditures are for the petroleum industry alone.

Table VII
Capital Spending Plans in the Energy Industries
 (Millions of dollars)

Industry	1987	1988	1989	1990
Coal Mining (a)	3,764	6,808	7,855	7,389
Electric Utilities	31,638	29,754	29,846	29,321
Gas Utilities	13,257	14,856	15,168	15,603
Petroleum Industry	34,584	41,849	44,669	50,396
Exploration & Production	21,199	25,780	26,813	32,474
Transportation	1,805	2,447	2,878	2,868
Refining	1,907	2,193	2,326	2,517
Petrochemicals	1,012	1,509	1,893	1,753
Marketing	4,352	4,896	5,137	5,146
Other (a)	4,269	5,025	5,622	5,638
Total Energy Industries	83,203	93,267	97,538	102,709
Total All Industries	389,688	435,094	460,356	465,085
Energy Share (%)	21	21	21	22

a. There is some duplication of investment in other petroleum and coal mining.

Table VIII
Detailed Industry Data

Industry	Capital Spending % Change		
	1988	1989	1990
DURABLES			
Blast Furnaces, Steel Works (a)	43.9	3.6	0.8
Nonferrous Metals (a)	5.3	-2.1	0.0
Primary Nonferrous Metals	5.4	-2.1	NC
Nonferrous Rolling and Drawing	-56.1	0.0	0.0
Electrical Machinery (a)	11.8	0.7	-3.6
Electric Distribution Equipment	2.9	0.2	0.0
Electrical Industrial Apparatus	17.9	-8.2	2.4
Household Appliances	66.7	5.0	14.3
Electric Lighting and Wiring	9.8	0.0	7.1
Communications Equipment	24.7	-13.5	-13.2
Electronic Components	40.4	34.6	-10.5
Misc Electrical	33.3	16.1	7.7
Nonelectrical Machinery (a)	4.5	-12.8	12.0
Farm & Garden Machinery	-24.4	-0.2	-4.3
Construction & Related Machinery	52.1	3.5	0.0
Metalworking Machinery	21.0	0.4	-1.1
Special Industry Machinery	935.0	-38.4	-84.5
General Industrial Machinery	49.9	6.5	7.5
Computer & Office Equipment	10.0	-15.0	4.4
Refrigeration and Service Machinery	53.0	6.2	-37.9
Motor Vehicles (a)	-7.5	38.1	-2.6
Aircraft (a)	7.3	-2.5	1.0
Fabricated Metals (a)	5.4	-4.4	9.7
Cutlery, Hand Tools, Hardware	4.8	14.2	10.0
Fabricated Structural Metal	-30.6	6.5	31.1
Screw Machine Products	20.0	8.3	3.8
Metal Forgings and Stampings	13.9	17.3	8.5
Misc Fabricated Metals	24.2	-21.2	1.5
Instruments (a)	14.0	32.7	-17.1
Measuring and Controlling Devices	-14.9	11.4	7.4
Medical Instruments and Supplies	48.5	47.7	-26.9
Stone, Clay & Glass (a)	2.4	24.1	-2.0
Flat Glass	-3.8	44.0	-2.8
Glass and Glassware, Pressed or Blown	-7.9	2.9	0.0
Cement, Hydraulic	55.9	-25.7	-5.5
Concrete, Gypsum, Plaster	38.9	-1.5	NA
Misc Nonmetallic Mineral Products	1.2	42.9	-3.7
Other Durables (a)	45.6	4.9	-4.8
Lumber & Wood Products	51.3	3.0	-8.0
Furniture & Fixtures	139.7	0.4	-48.5
Ships & Boats	-6.7	-18.4	0.0
Railroad Equipment	-55.6	87.5	0.0
NONDURABLES			
Chemicals (a)	23.2	10.2	4.1
Industrial Inorganic Chemicals	26.3	36.2	-9.2
Plastics Materials and Synthetics	48.1	3.2	32.9
Drugs	10.2	43.2	11.0
Soap, Cleaners, & Toilet Goods	26.1	-21.0	9.4
Paints	44.8	NC	7.1
Industrial Organic Chemicals	17.6	12.5	11.1
Agricultural Chemicals	123.1	117.2	33.3
Misc Chemical Products	15.3	0.0	-21.3
Paper (a)	52.0	35.2	4.0
Paper Mills	42.6	-12.5	23.1
Converted Paper Products	-72.0	100.0	0.0
Paperboard Containers & Boxes	59.6	41.0	11.9

Table VIII
(Continued)

Industry	Capital Spending % Change		
	1988	1989	1990
Rubber & Misc Plastics (a)	66.6	-1.8	0.4
Tires & Inner Tubes	65.7	-5.6	-3.9
Miscellaneous Plastics Products	125.0	0.0	0.0
Petroleum (a)	22.6	8.4	14.2
Food Including Beverages (a)	24.7	3.4	-4.8
Meat Products	5.4	57.6	NA
Preserved Fruits and Vegetables	-5.0	-30.2	12.8
Grain Mill Products	37.5	45.5	0.0
Sugar & Confectionary Products	-25.0	0.0	13.3
Beverages	6.9	8.3	-11.1
Textiles (a)	19.3	1.0	5.4
Broadwoven Fabric Mills, Cotton	0.1	-31.8	20.0
Knitting Mills	40.8	1.2	5.3
Yarn and Thread Mills	25.0	0.0	0.0
Other Nondurables (a)	32.7	-14.7	-18.7
Tobacco	44.1	19.8	-29.9
Apparel	25.0	3.7	12.4
Printing and Publishing	32.0	-19.2	-19.8
Leather & Leather Products	49.0	-5.3	6.2
NONMANUFACTURING			
Mining (a)	41.3	-6.6	5.7
Coal Mining	-9.0	15.5	-4.1
Bituminous Coal	-13.7	26.1	-4.9
Oil & Gas Extraction	59.4	-12.3	7.7
Oil & Gas Field Services	-29.4	-5.3	10.2
Nonmetallic Minerals, ex Fuels	89.1	0.0	-57.1
Railroad (a)	42.3	-16.8	0.0
Air Transportation (a)	204.0	-18.8	-23.6
Other Transportation (a)	5.9	18.7	-1.1
Trucking and Warehousing	13.0	5.2	-3.4
Water Transportation	-3.6	45.4	0.8
Pipelines, ex Natural Gas	-33.9	-7.8	-4.0
Transportation Services	19.1	-52.8	7.1
Electric Utilities (a)	-6.7	-0.1	-1.4
Gas & Other Utilities (a)	-1.0	2.7	2.3
Communication (a)	8.0	5.1	-1.6
Telephone Communication	8.0	5.1	-1.6
Trade & Services (a)	4.8	1.2	6.1
General Building Contractors	98.1	2.5	-12.2
Heavy Construction, ex Building	-37.7	4.0	-1.3
Retail and Wholesale Trade	25.1	-4.4	-2.1
Hardware, Plumbing Eq--Wholesale	24.8	3.6	-2.2
General Merchandise Stores	7.2	1.2	1.5
Food Stores	77.2	-15.7	-9.6
Finance	131.2	-0.3	-19.9
Insurance Carriers	16.1	-1.3	-21.8
Personal & Business Services	-0.1	5.6	13.4
Hotels and Motels	-24.8	42.9	NA
Business Services	-9.3	-6.3	0.5
Computer and Data Processing Services	-9.3	-7.7	NC
Miscellaneous Business Services	-10.1	0.0	-42.9
Educational Services	-44.0	0.0	0.0
Services, nec	-69.9	0.0	0.0

a. Percentage changes in this report are different from those reported in Table I because of the treatment of outliers. In Table I, the dollar spending of outliers is reincluded when going from sample percentage change to the level of industry spending.

Table IX
Survey Sample Size

Industry	Percentage of Capital Spending Covered by Survey
Blast Furnaces, Steel Works	12.1
Nonferrous Metals	33.2
Electrical Machinery	9.3
Nonelectrical Machinery	16.8
Motor Vehicles	79.1
Aircraft	77.3
Fabricated Metals	6.2
Instruments	9.2
Stone, Clay & Glass	21.8
Other Durables	8.1
TOTAL DURABLES	27.0
Chemicals	21.6
Paper	9.6
Rubber & Misc Plastics	2.2
Petroleum	63.2
Food Including Beverages	18.7
Textiles	6.1
Other Nondurables	4.1
TOTAL NONDURABLES	24.2
ALL MANUFACTURING	25.6
Mining	6.5
Railroad	22.8
Air Transportation	19.7
Other Transportation	5.4
Electric Utilities	57.2
Gas & Other Utilities	6.5
Communication	31.3
Trade & Services	2.2
TOTAL NONMANUFACTURING	14.7
ALL BUSINESS	18.8

CONFIDENTIAL

NO. G _____

GENERAL

Data Resources
24 Hartwell Ave.
Lexington, Massachusetts 02173

PRELIMINARY SURVEY OF BUSINESS' PLANS FOR NEW PLANTS & EQUIPMENT 1988-90

Please fill in all blanks. If your answer is zero, please write in "0." If your answer is "not applicable" or "not available," please write in "NA." All questions refer to U. S. only. The survey applies to non-manufacturing as well as manufacturing companies, and covers expenditures in areas such as computers, office furniture, office construction and oil drilling as well as industrial purchases of items like machine tools.

1. How much did your company spend on plant and equipment in the United States in 1987 and how much does it plan to spend (including inflation) in 1988, 1989, and 1990? (Please include all purchases charged to capital accounts, whether for replacement, expansion, or other purposes. Include value of plant and equipment leased to others. Do not include acquisitions or value of plant and equipment leased from others. Include special tools. If your company has merged with another since 1987, please report spending on a comparable basis for all years.)

1987	1988	1989	1990
\$	\$	\$	\$

If the answers above omit 000s or 000,000s please indicate: _____

2. By what percent, on average, do you think the prices you pay for plants and equipment will increase (decrease) in 1989 vs. 1988 ? _____ %

*If company policy prevents you from answering the following questions,
please skip them and return the questionnaire*

3. By what percent does your company expect its sales, in dollar terms, to increase, (decrease) in 1989 vs. 1988 ? _____ %
4. By what percent, on average, do you expect the prices your company charges for its products or services to increase (decrease) in 1989 vs. 1988 ? _____ %

NAME _____ TITLE _____
COMPANY _____ PHONE () _____
ADDRESS _____
COMPANY'S MAJOR LINE OF BUSINESS _____

ALL YOUR ANSWERS WILL BE HELD STRICTLY CONFIDENTIAL

(Please return by November 4, 1988)

CONFIDENTIAL

NO. A _____
AUTO

Data Resources
24 Hartwell Ave.
Lexington, Massachusetts 02173

PRELIMINARY SURVEY OF BUSINESS' PLANS FOR NEW PLANTS & EQUIPMENT 1988-90

Please fill in all blanks. If your answer is zero, please write in "0." If your answer is "not applicable" or "not available," please write in "NA." All questions refer to U.S. only.

1. How much did your company spend on plant and equipment in the United States in 1987 and how much does it plan to spend (including inflation) in 1988, 1989, and 1990? (Please include all purchases charged to capital accounts, whether for replacement, expansion, or other purposes. Include value of plant and equipment leased to others. Do not include acquisitions or value of plant and equipment leased from others. Include special tools. If your company has merged with another since 1987, please report spending on a comparable basis for all years.)

1987	1988	1989	1990
\$	\$	\$	\$

If the answers above omit 000s or 000,000s please indicate: _____

2. By what percent, on average, do you think the prices you pay for plants and equipment will increase (decrease) in 1989 vs. 1988 ? _____ %

*If company policy prevents you from answering the following questions,
please skip them and return the questionnaire*

3. By what percent does your company expect its sales, in dollar terms, to increase, (decrease) in 1989 vs. 1988 ? _____ %
4. By what percent, on average, do you expect the prices your company charges for its products or services to increase (decrease) in 1989 vs. 1988 ? _____ %

NAME _____ TITLE _____

COMPANY _____ PHONE () _____

ADDRESS _____

COMPANY'S MAJOR LINE OF BUSINESS _____

ALL YOUR ANSWERS WILL BE HELD STRICTLY CONFIDENTIAL

(Please return by October 7, 1988)

CONFIDENTIAL

NO. CH _____

CHEMICALS

Data Resources
24 Hartwell Ave.
Lexington, Massachusetts 02173

 PRELIMINARY SURVEY OF BUSINESS' PLANS FOR NEW PLANTS & EQUIPMENT 1988-90

Please fill in all blanks. If your answer is zero, please write in "0." If your answer is "not applicable" or "not available," please write in "NA." All questions refer to U.S. only.

1. How much did your company spend on plant and equipment in the United States in 1987 and how much does it plan to spend (including inflation) in 1988, 1989, and 1990? (Please include all purchases charged to capital accounts, whether for replacement, expansion, or other purposes. Include value of plant and equipment leased to others. Do not include acquisitions or value of plant and equipment leased from others. Include special tools. If your company has merged with another since 1987, please report spending on a comparable basis for all years.)

1987	1988	1989	1990
\$ _____	\$ _____	\$ _____	\$ _____

a. Please indicate the division between:

	1987	1988	1989	1990
Manufacturing	\$ _____	\$ _____	\$ _____	\$ _____
Nonmetallic Mining	\$ _____	\$ _____	\$ _____	\$ _____
Other (Please Specify)	\$ _____	\$ _____	\$ _____	\$ _____

If the answers above omit 000s or 000,000s please indicate: _____

2. By what percent, on average, do you think the prices you pay for plants and equipment will increase (decrease) in 1989 vs. 1988 ? _____ %

If company policy prevents you from answering the following questions, please skip them and return the questionnaire

3. By what percent does your company expect its sales, in dollar terms, to increase, (decrease) in 1989 vs. 1988 ? _____ %
4. By what percent, on average, do you expect the prices your company charges for its products or services to increase (decrease) in 1989 vs. 1988 ? _____ %

NAME _____ TITLE _____

COMPANY _____ PHONE () _____

ADDRESS _____

COMPANY'S MAJOR LINE OF BUSINESS _____

 ALL YOUR ANSWERS WILL BE HELD STRICTLY CONFIDENTIAL

(Please return by October 7, 1988)

CONFIDENTIAL

NO. IC _____

IRON & STEEL

Data Resources
24 Hartwell Ave.
Lexington, Massachusetts 02173

PRELIMINARY SURVEY OF BUSINESS' PLANS FOR NEW PLANTS & EQUIPMENT 1988-90

Please fill in all blanks. If your answer is zero, please write in "0." If your answer is "not applicable" or "not available," please write in "NA." All questions refer to U.S. only.

1. How much did your company spend on plant and equipment in the United States in 1987 and how much does it plan to spend (including inflation) in 1988, 1989, and 1990? (Please include all purchases charged to capital accounts, whether for replacement, expansion, or other purposes. Include value of plant and equipment leased to others. Do not include acquisitions or value of plant and equipment leased from others. Include special tools. If your company has merged with another since 1987, please report spending on a comparable basis for all years.)

1987	1988	1989	1990
\$ _____	\$ _____	\$ _____	\$ _____

- a. If your operations include both manufacturing and mining, how much is for each of the following? (Under iron mining, please include beneficiation.)

	1987	1988	1989	1990
Manufacturing	\$ _____	\$ _____	\$ _____	\$ _____
Iron Mining	\$ _____	\$ _____	\$ _____	\$ _____
Coal Mining	\$ _____	\$ _____	\$ _____	\$ _____
Nonmetallic Mining	\$ _____	\$ _____	\$ _____	\$ _____
Other (Please Specify)	\$ _____	\$ _____	\$ _____	\$ _____

If the answers above omit 000s or 000,000s please indicate: _____

2. By what percent, on average, do you think the prices you pay for plants and equipment will increase (decrease) in 1989 vs. 1988 ? _____ %

*If company policy prevents you from answering the following questions,
please skip them and return the questionnaire*

3. By what percent does your company expect its sales, in dollar terms, to increase, (decrease) in 1989 vs. 1988 ? _____ %
4. By what percent, on average, do you expect the prices your company charges for its products or services to increase (decrease) in 1989 vs. 1988 ? _____ %

NAME _____ TITLE _____

COMPANY _____ PHONE () _____

ADDRESS _____

COMPANY'S MAJOR LINE OF BUSINESS _____

ALL YOUR ANSWERS WILL BE HELD STRICTLY CONFIDENTIAL

(Please return by October 7, 1988)

Data Resources
24 Hartwell Ave.
Lexington, Massachusetts 02173

PRELIMINARY SURVEY OF BUSINESS' PLANS FOR NEW PLANTS & EQUIPMENT 1988-90

Please fill in all blanks. If your answer is zero, please write in "0." If your answer is "not applicable" or "not available," please write in "NA." All questions refer to U.S. only.

1. How much did your company spend on plant and equipment in the United States in 1987 and how much does it plan to spend (including inflation) in 1988, 1989, and 1990? (Please include all purchases charged to capital accounts, whether for replacement, expansion, or other purposes. Include value of plant and equipment leased to others. Do not include acquisitions or value of plant and equipment leased from others. Include special tools. If your company has merged with another since 1987, please report spending on a comparable basis for all years.)

1987	1988	1989	1990
\$ _____	\$ _____	\$ _____	\$ _____

- a. If your operations include both manufacturing and mining, how much is for each of the following? (Under mining, please include all mineral processing.)

	1987	1988	1989	1990
Manufacturing	\$ _____	\$ _____	\$ _____	\$ _____
Nonmetallic Mining	\$ _____	\$ _____	\$ _____	\$ _____
Nonferrous Mining	\$ _____	\$ _____	\$ _____	\$ _____
Other (Please Specify)	\$ _____	\$ _____	\$ _____	\$ _____

If the answers above omit 000s or 000,000s please indicate: _____

2. By what percent, on average, do you think the prices you pay for plants and equipment will increase (decrease) in 1989 vs. 1988 ? _____ %

If company policy prevents you from answering the following questions, please skip them and return the questionnaire

3. By what percent does your company expect its sales, in dollar terms, to increase, (decrease) in 1989 vs. 1988 ? _____ %
4. By what percent, on average, do you expect the prices your company charges for its products or services to increase (decrease) in 1989 vs. 1988 ? _____ %

NAME _____ TITLE _____

COMPANY _____ PHONE () _____

ADDRESS _____

COMPANY'S MAJOR LINE OF BUSINESS _____

ALL YOUR ANSWERS WILL BE HELD STRICTLY CONFIDENTIAL

(Please return by October 7, 1988)

CONFIDENTIAL

NO. N _____
NONFERROUS METALSData Resources
24 Hartwell Ave.
Lexington, Massachusetts 02173

PRELIMINARY SURVEY OF BUSINESS' PLANS FOR NEW PLANTS & EQUIPMENT 1988-90

Please fill in all blanks. If your answer is zero, please write in "0." If your answer is "not applicable" or "not available," please write in "NA." All questions refer to U.S. only.

1. How much did your company spend on plant and equipment in the United States in 1987 and how much does it plan to spend (including inflation) in 1988, 1989, and 1990? (Please include all purchases charged to capital accounts, whether for replacement, expansion, or other purposes. Include value of plant and equipment leased to others. Do not include acquisitions or value of plant and equipment leased from others. Include special tools. If your company has merged with another since 1987, please report spending on a comparable basis for all years.)

1987	1988	1989	1990
\$ _____	\$ _____	\$ _____	\$ _____

- a. If your operations include both manufacturing and mining, how much is for each of the following? (Under mining, please include all operations including smelting and refining.)

	1987	1988	1989	1990
Manufacturing	\$ _____	\$ _____	\$ _____	\$ _____
Nonferrous Mining	\$ _____	\$ _____	\$ _____	\$ _____
Coal Mining	\$ _____	\$ _____	\$ _____	\$ _____
Nonmetallic Mining	\$ _____	\$ _____	\$ _____	\$ _____
Other (Please Specify)	\$ _____	\$ _____	\$ _____	\$ _____

If the answers above omit 000s or 000,000s please indicate: _____

2. By what percent, on average, do you think the prices you pay for plants and equipment will increase (decrease) in 1989 vs. 1988 ? _____ %

If company policy prevents you from answering the following questions,
please skip them and return the questionnaire

3. By what percent does your company expect its sales, in dollar terms, to increase, (decrease) in 1989 vs. 1988 ? _____ %
4. By what percent, on average, do you expect the prices your company charges for its products or services to increase (decrease) in 1989 vs. 1988 ? _____ %

NAME _____ TITLE _____
COMPANY _____ PHONE () _____
ADDRESS _____
COMPANY'S MAJOR LINE OF BUSINESS _____

ALL YOUR ANSWERS WILL BE HELD STRICTLY CONFIDENTIAL

(Please return by October 7, 1988)

CONFIDENTIAL

NO. P _____

PETROLEUM

Data Resources
24 Hartwell Ave.
Lexington, Massachusetts 02173

PRELIMINARY SURVEY OF BUSINESS' PLANS FOR NEW PLANTS & EQUIPMENT 1988-90

Please fill in all blanks. If your answer is zero, please write in "0." If your answer is "not applicable" or "not available," please write in "NA." All questions refer to U.S. only.

1. How much did your company spend on plant and equipment in the United States in 1987 and how much does it plan to spend (including inflation) in 1988, 1989, and 1990? (Please include all purchases charged to capital accounts, whether for replacement, expansion, or other purposes. Include value of plant and equipment leased to others. Do not include acquisitions or value of plant and equipment leased from others. Include special tools. If your company has merged with another since 1987, please report spending on a comparable basis for all years.)

1987	1988	1989	1990
\$ _____	\$ _____	\$ _____	\$ _____

- a. Please indicate the division between:

	1987	1988	1989	1990
Exploration & Prod.	\$ _____	\$ _____	\$ _____	\$ _____
Refining	\$ _____	\$ _____	\$ _____	\$ _____
Petrochemicals	\$ _____	\$ _____	\$ _____	\$ _____
Transportation	\$ _____	\$ _____	\$ _____	\$ _____
Marketing	\$ _____	\$ _____	\$ _____	\$ _____
Coal Mining	\$ _____	\$ _____	\$ _____	\$ _____
Other (Please Specify)	\$ _____	\$ _____	\$ _____	\$ _____

If the answers above omit 000s or 000,000s please indicate: _____

- b. How many net wells (i.e., sum of financial interest of gross wells in which you participate) did (will) you drill in 1987-89 in search of oil and gas ?
- | 1987 | 1988 | 1989 |
|-------|-------|-------|
| _____ | _____ | _____ |
2. By what percent, on average, do you think the prices you pay for plants and equipment will increase (decrease) in 1989 vs. 1988 ? _____ %

If company policy prevents you from answering the following questions, please skip them and return the questionnaire

3. By what percent does your company expect its sales, in dollar terms, to increase, (decrease) in 1989 vs. 1988 ? _____ %
4. By what percent, on average, do you expect the prices your company charges for its products or services to increase (decrease) in 1989 vs. 1988 ? _____ %

NAME _____ TITLE _____

COMPANY _____ PHONE () _____

ADDRESS _____

COMPANY'S MAJOR LINE OF BUSINESS _____

ALL YOUR ANSWERS WILL BE HELD STRICTLY CONFIDENTIAL

DRI/McGraw-Hill

42nd ANNUAL DRI/McGraw-Hill SPRING SURVEY OF BUSINESS PLANS FOR NEW PLANTS AND EQUIPMENT, 1989-91

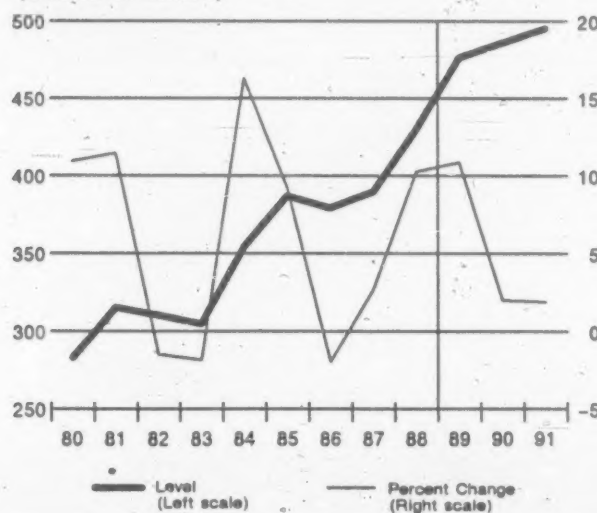
June 1989

Bowed but not beaten, the U.S. economy tentatively charts its seventh year of continuous growth. Despite mounting signs of slowing economic activity, however, America's investment planners see additional spending as the proper course.

According to DRI/McGraw-Hill's spring survey of capital spending plans, corporations intend to match last year's investment boom with another one in 1989. Respondents expect domestic spending by U.S. and foreign-owned firms to climb another 10.9%, to \$476.3 billion, this year (Chart 1 and Table 1). This boost is nearly twice as large as the 5.8% increase projected for 1989 in the November survey.

Despite sharp, across-the-board price increases this year, inflationary expectations are unchanged: survey respondents still expect plant and equipment prices to rise 4.7% in 1989, the same pace reported in the fall survey. As a result, the nominal spending increase reported in this latest survey implies an even larger "real" spending increase. If realized, inflation-adjusted capital investment would thus expand 5.9% this year rather than 1.0% as predicted last fall.

Chart 1
Investment in New Plants and Equipment:
All Businesses
(Billions of dollars)



24 Hartwell Avenue
Lexington, Massachusetts 02173
Telephone: (617) 863-5100
Fax: (617) 860-6332

Table 1
Plans for Capital Spending
 (Billions of dollars)

Industry	Level				Percent Change		
	1988	1989	1990	1991	1989	1990	1991
Blast Furnaces, Steel Works	6.16	6.21	5.62	5.81	0.8	-9.6	3.5
Nonferrous Metals	2.77	3.18	3.17	2.78	14.9	-0.5	-12.3
Electrical Machinery	18.29	20.21	20.04	19.16	10.5	-0.9	-4.4
Nonelectrical Machinery	15.22	15.17	15.38	15.48	-0.3	1.4	0.6
Motor Vehicles	10.61	15.60	16.68	16.19	47.1	6.4	-2.5
Aircraft	3.44	4.18	3.89	5.01	21.8	-4.7	25.8
Fabricated Metals	4.32	4.81	5.47	6.22	11.4	13.8	13.6
Instruments (a)	4.33	4.19	4.43	4.97	-3.4	5.8	12.2
Stone, Clay & Glass	3.59	4.31	4.21	4.10	20.1	-2.3	-2.7
Other Durables (a)	9.39	12.88	12.49	9.89	37.1	-3.0	-20.8
TOTAL DURABLES	78.12	90.75	91.40	89.62	16.2	0.7	-2.0
Chemicals	19.25	23.40	23.64	23.51	21.5	1.0	-0.6
Paper	11.24	15.89	15.10	11.90	41	1.3	-26.1
Rubber & Misc Plastics	3.86	4.20	3.71	3.54	8.8	-11.7	-4.5
Petroleum	19.93	18.99	20.32	20.58	-4.7	7.0	1.2
Food Including Beverages	12.84	15.46	15.08	14.17	20.4	-2.5	-6.0
Textiles	2.12	2.28	1.55	1.85	7.6	-32.0	19.1
Other Nondurables	18.34	21.04	19.58	17.84	14.7	-6.9	-8.9
TOTAL NONDURABLES	87.59	101.27	99.98	93.39	15.6	-1.3	-6.6
ALL MANUFACTURING	165.71	192.02	191.38	183.00	15.9	-0.3	-4.4
Mining	12.67	12.87	12.49	14.09	1.6	-2.9	12.8
Railroad	7.06	8.82	7.66	7.61	24.9	-13.2	-0.6
Air Transportation	7.25	10.01	10.58	12.53	38.0	5.8	18.4
Other Transportation	7.04	7.72	14.29	15.16	9.7	85.0	6.1
Electric Utilities	31.90	33.52	33.78	33.35	5.1	0.8	-1.3
Gas & Other Utilities	14.60	16.16	14.62	14.69	10.7	-9.6	0.5
Communication	32.03	32.36	33.59	31.37	1.0	3.8	-6.6
Trade & Services (b)	151.41	162.81	167.46	183.33	7.5	2.9	9.5
ALL NONMANUFACTURING	263.96	284.27	294.47	312.13	7.7	3.6	6.0
ALL BUSINESS	429.67	476.29	485.85	495.13	10.9	2.7	1.8

a. Historical data for the instruments series is taken from the Census Bureau's Survey of Manufacturers. Data for 1988 are from the November 1988 DRI/McGraw-Hill Survey. The other durables category is redefined to have components' sum equal total durables.

b. DRI estimate.

While all three major sectors plan solid gains in capital spending, the two manufacturing groups combined look for a strong advance of 15.9%. Durable goods manufacturers intend to push investment up 16.2% this year, led by spending surges in the motor-vehicle, aircraft, and "other" durables (particularly railroad equipment and furniture and fixtures) industries. Indeed, the only durable industries that intend to cut back investment are non-electrical machinery and instruments. Meanwhile, nondurable goods manufacturers are slated for a 15.6% spending increase; here, the chemical, paper, and food industries will lead the charge, with only petroleum refiners planning reductions. Among nonmanufacturers, strong increases reported by airlines, railroads, and gas and "other" utilities lift total spending for the group 7.7% in 1989.

These are the key findings of DRI/McGraw-Hill's 42nd Annual Spring Survey of Business Plans for New Plants and Equipment. Conducted in April and May, the survey drew responses from 341 companies that account for nearly 20% of total plant and equipment spending in the United States (Table A.6). Figures in this report have been adjusted to represent spending by all U.S. and foreign-owned companies, and reflect domestic investment only.

THE SLOWDOWN AROUND US

Many business indicators—including consumer spending, housing starts, industrial output, capacity utilization rates, inventories, Treasury bill rates, and corporate profit margins—have peaked and are now erratically declining. Exports are the only engine of growth today; when they sag, the ripple effects through payrolls and capital spending will be chilling. The federal government is in no position to jump into the breach by raising purchases or cutting taxes.

But inflation, stemming from high factory operating rates and tight labor markets, remains a real threat and the Federal Reserve is likely to keep a relatively tight rein on the money supply. Consequently, DRI/McGraw-Hill expects real GNP growth to slow from now through 1990, with business investment following suit somewhat belatedly. Although the survey results of an 11% nominal investment increase seems particularly strong in light of last year's investment gains and this year's economic slowdown, it should be noted that capital spending is a lagging indicator of the economy.

INFLATION PRESSURES

Survey respondents expect capital goods prices to rise an average of 4.7% in 1989 (Table 2); DRI projects an increase of only 2.8%. While lingering fears of an overheating economy may be the source of this pessimism, respondents have consistently overstated capital goods price inflation over the years. For example, in November 1987 and May 1988, they predicted 4.2% and 4.4% rises in 1988 plant and equipment prices; actual capital goods inflation ran at only 0.1% last year.

Respondents' estimates may also be high because they take little account of quality improvements in the capital goods they purchase. Their projections thus tend to exceed official investment estimates, which do adjust for quality enhancement. This discrepancy is particularly important in the case of office and computing equipment: because of technological improvements in computers, the price deflator for office equipment has declined by about 13% annually in the 1980s.

Overall, respondents expect to raise their prices an average of 3.9% in 1989. Manufacturers look for a 4.6% increase, along with an 8.3% jump in sales (Table 3). If both expectations are realized, real sales would rise

Table 2
Inflation Expectations
(Percentage change)

Industry	Plant & Equipment Prices	Product Prices
Blast Furnaces, Steel Works	4.9	0.6
Nonferrous Metals	3.3	2.6
Electrical Machinery	3.5	4.3
Nonelectrical Machinery	5.1	6.5
Motor Vehicles	NA	NA
Aircraft	4.9	3.0
Fabricated Metals	5.4	3.4
Instruments	3.0	0.8
Stone, Clay & Glass	4.9	1.1
Other Durables	4.1	6.7
TOTAL DURABLES	4.3	4.4
Chemicals	4.8	4.0
Paper	5.8	5.6
Rubber & Misc Plastics	3.8	3.2
Petroleum	5.3	2.9
Food Including Beverages	4.2	3.9
Textiles	5.1	9.9
Other Nondurables	5.6	6.2
TOTAL NONDURABLES	5.1	4.8
ALL MANUFACTURING	4.7	4.6
Mining	4.3	-3.2
Railroad	3.8	3.2
Air Transportation	NA	NA
Other Transportation	3.5	0.5
Electric Utilities	4.3	3.0
Gas & Other Utilities	4.4	6.8
Communication	4.2	0.1
Trade & Services (b)	5.0	4.8
ALL NONMANUFACTURING	4.7	3.5
ALL BUSINESS	4.7	3.9

Chart 2
New Plant and Equipment Prices
(Percent change)

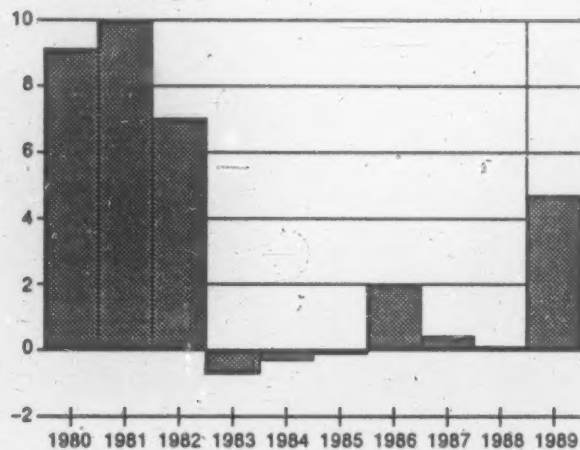


Chart 3
Product Prices
(Percent change)

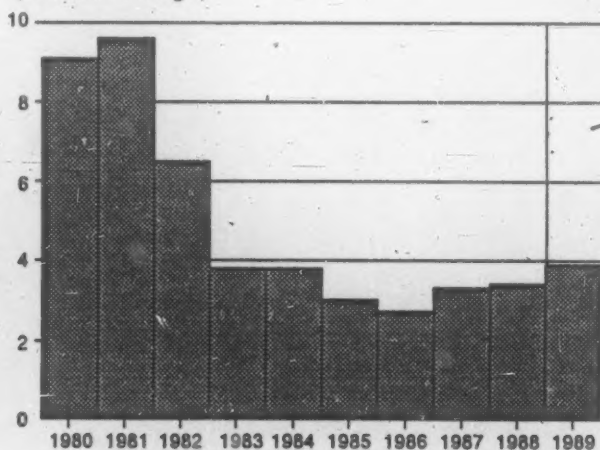


Table 3
Sales Expectations
(Billions of dollars)

Industry	1988 Actual	1989 Expected	1988-89 % Change
Blast Furnaces, Steel Works	60.9	60.8	-0.1
Nonferrous Metals	70.8	72.8	2.8
Electrical Machinery	226.7	240.0	5.9
Nonelectrical Machinery	246.7	267.0	8.2
Motor Vehicles	219.0	NA	NA
Aircraft	107.6	135.0	25.4
Fabricated Metals	144.0	155.8	8.2
Instruments	72.4	80.7	11.4
Stone, Clay & Glass	64.0	67.7	5.8
Other Durables	174.7	192.5	10.2
TOTAL DURABLES	1,387.0	1,495.4	7.8
Chemicals	241.1	260.1	7.9
Paper	124.2	137.9	11.1
Rubber & Misc Plastics	91.3	101.9	11.7
Petroleum	124.3	128.6	3.4
Food Including Beverages	356.7	395.3	10.8
Textiles	59.7	62.2	4.2
Other Nondurables	226.7	244.9	8.1
TOTAL NONDURABLES	1,223.9	1,330.9	8.7
ALL MANUFACTURING	2,610.9	2,826.3	8.3
Mining	NA	NA	4.8
Railroad	NA	NA	2.9
Air Transportation	NA	NA	NA
Other Transportation	NA	NA	7.1
Electric Utilities	NA	NA	2.2
Gas & Other Utilities	NA	NA	3.3
Communication	NA	NA	5.8
Trade & Services	NA	NA	8.3
ALL NONMANUFACTURING	NA	NA	6.6
ALL BUSINESS	NA	NA	7.2

Table 4
Real Sales Expectations
(Billions of 1988 dollars)

Industry	1988	1989 Expected	1988-89 % Change
Blast Furnaces, Steel Works	60.9	60.5	-0.8
Nonferrous Metals	70.8	71.0	0.2
Electrical Machinery	226.7	230.0	1.5
Nonelectrical Machinery	246.7	250.7	1.6
Motor Vehicles	219.0	NA	NA
Aircraft	107.6	131.1	21.8
Fabricated Metals	144.0	150.7	4.6
Instruments	72.4	80.0	10.5
Stone, Clay & Glass	64.0	67.0	4.6
Other Durables	174.7	180.4	3.3
TOTAL DURABLES	1,387.0	1,435.1	3.5
Chemicals	241.1	250.0	3.7
Paper	124.2	130.6	5.2
Rubber & Misc Plastics	91.3	98.7	8.2
Petroleum	124.3	125.0	0.5
Food Including Beverages	356.7	380.6	6.7
Textiles	59.7	56.6	-5.2
Other Nondurables	226.7	239.5	5.7
TOTAL NONDURABLES	1,223.9	1,272.0	3.9
ALL MANUFACTURING	2,610.9	2,707.1	3.7
Mining	NA	NA	8.0
Railroad	NA	NA	-0.3
Air Transportation	NA	NA	NA
Other Transportation	NA	NA	6.6
Electric Utilities	NA	NA	-0.8
Gas & Other Utilities	NA	NA	-3.5
Communication	NA	NA	5.7
Trade & Services	NA	NA	3.6
ALL NONMANUFACTURING	NA	NA	3.1
ALL BUSINESS	NA	NA	3.3

3.7% (Table 4)—a somewhat optimistic projection in light of the economic slowdown already manifesting itself.

INVESTMENT PRIORITIES

Planners are allocating fewer funds for expansion this year: after devoting 32% of their capital budgets for expansion in 1988, manufacturers intend to allot only 28% this year (Table 5). This reduction is not surprising in light of the slowing economy and the burst of expansion initiated last year (Table 6), which has already lowered capacity utilization rates.

It should be noted that expansion of U.S. manufacturing facilities has been slowing for some time (Chart 3). As recently as 1978, manufacturers devoted nearly equal amounts to both expansion and replacement/modernization needs; by 1987, though, the expansion share hit a record low of 26%.

Table 5
Shares of Total Investment Allotted to
Expansion and Replacement/Modernization
(Percent)

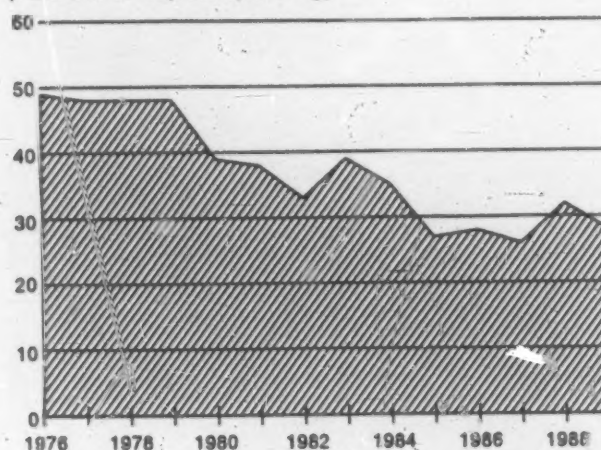
Industry	Actual 1988		Planned 1989		Planned 1990	
	Expans.	Replace. Modern.	Expans.	Replace. Modern.	Expans.	Replace. Modern.
Blast Furnaces, Steel Works	5	95	3	97	4	96
Nonferrous Metals	18	82	40	60	54	46
Electrical Machinery	29	71	21	79	24	76
Nonelectrical Machinery	24	76	16	84	16	84
Motor Vehicles	10	90	15	85	20	80
Aircraft	30	70	20	80	15	85
Fabricated Metals	12	88	15	85	14	86
Instruments	34	66	33	67	32	68
Stone, Clay & Glass	35	65	35	65	36	64
Other Durables	53	47	36	64	21	79
TOTAL DURABLES	26	74	22	78	21	79
Chemicals	31	69	33	67	33	67
Paper	52	48	50	50	69	31
Rubber & Misc Plastics	36	64	54	46	50	50
Petroleum	28	72	9	91	9	91
Food Including Beverages	49	51	48	52	56	44
Textiles	24	76	27	73	24	76
Other Nondurables	49	51	39	61	27	73
TOTAL NONDURABLES	39	61	35	65	37	63
ALL MANUFACTURING	32	68	28	72	29	71
Mining	81	19	78	22	80	20

Nonetheless, modernization activities do in fact help to boost output because manufacturing innovations contribute directly to productivity: witness computer-aided design and manufacturing.

Table 6
Capacity Expansion
(1977=100)

Industry	Level				Percent Change		
	1987	1988	1989	1990	1987-88	1988-89	1989-90
Blast Furnaces, Steel Works	78	80	78	81	2.2	-1.5	2.8
Nonferrous Metals	117	123	129	135	5.0	5.0	5.0
Electrical Machinery	183	193	202	207	5.2	5.1	2.2
Nonelectrical Machinery	139	140	142	144	0.7	1.4	1.4
Motor Vehicles	118	123	127	131	3.9	3.4	3.5
Other Transportation Equip.	153	157	146	113	2.3	-7.0	-22.7
Fabricated Metals & Instruments	154	166	178	187	7.7	7.1	5.2
Stone, Clay & Glass	145	158	164	164	8.9	3.6	0.1
Chemicals	140	149	160	168	6.5	7.0	5.4
Paper	147	154	169	181	4.9	9.9	6.7
Rubber & Misc Plastics	130	141	158	172	8.3	12.1	9.0
Petroleum	97	99	99	99	2.5	-0.1	0.0
Food Including Beverages	165	171	177	193	3.6	3.5	8.9
Textiles	137	143	158	177	4.7	10.4	12.0
Miscellaneous Manufacturing	140	141	143	147	0.9	1.3	2.8
ALL MANUFACTURING	142	148	153	158	3.9	3.7	2.9
Electric, Gas & Other Utilities	117	119	122	124	2.0	2.2	1.5

Chart 4
Investment in Expansion by
All Manufacturing Industries
(Percent of capital spending)



For durable goods producers, the 26% share of funds allocated to expansion last year was a temporary blip rather than a turnaround; 1989 should return to the 1987 level of 22%. Given a preferred operating rate of

Table 7
Capacity Utilization Rates
(Percent)

Industry	Year-end 1987	Year-end 1988	Point Difference 1987-88	Preferred Rate of Operation
Blast Furnaces, Steel Works	91.4	92.2	0.8	94.9
Nonferrous Metals	95.3	95.9	2.6	98.0
Electrical Machinery	79.2	80.9	1.7	89.1
Nonelectrical Machinery	80.7	84.8	4.1	88.4
Motor Vehicles	94.0	94.7	0.7	99.5
Aircraft	80.9	96.4	15.5	89.7
Fabricated Metals	70.0	80.8	10.8	88.2
Instruments	72.3	75.9	3.6	86.4
Stone, Clay & Glass	78.8	83.5	4.7	89.0
Other Durables	94.5	93.4	-1.1	93.6
TOTAL DURABLES	83.5	87.1	3.6	91.2
Chemicals	83.6	87.1	3.5	84.8
Paper	95.6	95.1	-0.5	96.9
Rubber & Misc Plastics	83.2	93.0	9.8	93.6
Petroleum	90.5	92.4	1.9	98.4
Food Including Beverages	78.6	88.2	9.6	88.4
Textiles	95.8	94.7	-1.1	91.5
Other Nondurables	74.2	69.3	-4.9	95.7
TOTAL NONDURABLES	82.6	85.2	2.6	91.4
ALL MANUFACTURING	83.1	86.3	3.2	91.3
Electric Utilities	73.7	73.1	-0.6	83.3
Gas & Other Utilities	73.4	88.6	15.2	96.7

91.2% and an actual operating rate of 87.1% at the end of 1988 (Table 7), durable goods manufacturers have ample capacity and little justification for ambitious expansion plans.

Similarly, nondurable goods makers show less inclination to allocate more of their budgets to expansion, although the jump in share from 30% in 1987 to 39% in 1988 will be only partially reversed this year (to 35%). This aggregate decline is somewhat misleading, however. Many nondurable goods industries are approaching or exceeding their preferred rates of capacity utilization; and most of these same industries intend to boost or at least maintain expansion spending shares in 1989 (see Table 5).

INDUSTRY HIGHLIGHTS

Within nondurable goods manufacturing, only **petroleum industry** respondents project an aggregate decline in investment this year; they look for a 4.7% cutback to \$19 billion. Despite a sharp rebound in profits and a strong increase in spending last year, the oil industry has become more cautious: profits peaked in the fourth quarter of 1988 and operating rates were more than a percentage point below their year-earlier level in the first quarter. In addition, current weakness in crude oil prices provides little incentive to expand exploration and drilling activities.

The **chemical industry**, on the other hand, is enjoying strong demand, high capacity utilization, and rising profits. Moreover, the U.S. trade surplus in chemicals posted a record \$12.3 billion in 1988, and has already outdistanced that level so far in 1989. Survey respondents in this industry reported a 21.5% surge in overall capital spending for the current year (led by agricultural chemical producers; see Table 8), along with an increase in the expansion share from 31% to 33%.

With shipments rising steadily and plants operating near preferred utilization rates, **food and beverage processors** plan a 20.4% jump in this year's capital spending. (Beverage companies, however, point to a spending cutback.) Food and beverage processors will place slightly more emphasis on replacement and modernization needs than on expansion activities.

U.S. paper and pulp companies report plans to follow up last year's 25% investment boost with another 41.4% push this year, shared equally between expansion and modernization priorities. Although industry operating rates were near preferred levels at the end of 1988, they seem to have weakened somewhat in the first quarter and after-tax profits are also off slightly; this suggests a mid-year correction in investment plans is possible.

Table 8
Capital Spending by Two- and Three-Digit SIC Industries
(Percent change)

Industry	1989	1990	1991
Durables			
Blast Furnaces, Steel Works (a).....	56.4	-11.0	-8.2
Nonferrous Metals (a).....	1.5	16.6	0.0
Primary Nonferrous Metals.....	1.0	17.6	NC
Nonferrous Rolling and Drawing.....	11.8	-7.9	0.0
Electrical Machinery (a).....	10.3	-0.9	-4.5
Electric Distribution Equipment.....	13.5	0.8	-3.2
Electrical Industrial Apparatus.....	10.2	0.9	-6.9
Household Appliances.....	-12.2	3.3	0.0
Electric Lighting and Wiring.....	9.7	10.0	12.1
Communications Equipment.....	8.3	-6.8	-6.8
Electronic Components.....	21.2	-3.6	-2.5
Misc Electrical.....	51.1	3.9	5.3
Nonelectrical Machinery (a).....	-0.3	1.4	0.7
Farm & Garden Machinery.....	36.4	0.0	0.0
Construction & Related Machinery.....	29.2	0.0	0.0
Metalworking Machinery.....	-2.0	11.8	6.3
Special Industry Machinery.....	126.9	114.6	0.0
General Industrial Machinery.....	-20.0	1.5	-17.4
Computer & Office Equipment.....	0.6	1.5	3.3
Refrigeration and Service Machinery.....	-1.4	-8.6	1.4
Motor Vehicles (a).....	46.9	6.6	-2.7
Aircraft (a).....	24.8	NC	25.8
Fabricated Metals (a).....	15.1	16.6	11.9
Cutlery, Hand Tools, Hardware.....	24.0	25.0	3.3
Plumbing and Heating, ex Elec.....	6.4	20.0	16.7
Fabricated Structural Metal.....	1.8	29.5	26.7
Screw Machine Products.....	7.1	0.0	0.0
Metal Forgings and Stampings.....	31.6	0.0	13.3
Misc Fabricated Metals.....	134.1	-15.7	0.0
Instruments (a).....	29.7	1.4	-0.6
Measuring and Controlling Devices.....	-13.4	8.6	12.5
Medical Instruments and Supplies.....	51.8	-0.3	-4.8
Stone, Clay & Glass (a).....	51.2	-4.4	-26.9
Flat Glass.....	23.6	2.9	0.0
Products of Purchased Glass.....	5.1	-4.0	NA
Cement, Hydraulic.....	27.5	-0.2	-35.5
Pottery.....	1.0	-25.0	-33.3
Concrete, Gypsum, Plaster.....	51.5	-8.5	-15.0
Misc Nonmetallic Mineral Products.....	78.6	-3.3	-37.6
Other Durables (a).....	-20.9	-3.1	-5.6
Lumber & Wood Products.....	-20.9	0.0	-20.0
Furniture & Fixtures.....	43.2	-20.2	0.0
Railroad Equipment.....	107.4	7.1	0.0
Nondurables			
Chemicals (a).....	17.1	10.7	1.9
Plastics Materials and Synthetics.....	54.8	-25.0	-22.2
Drugs.....	48.0	9.5	5.3
Soap, Cleaners, & Toilet Goods.....	-10.5	0.0	-18.9
Paints.....	-2.5	5.1	5.7
Agricultural Chemicals.....	288.0	-13.4	-20.2
Misc Chemical Products.....	-5.5	-2.4	-6.5
Paper & Pulp (a).....	41.4	1.5	-26.1
Paper Mills.....	-1.2	1.3	-17.6
Converted Paper Products.....	41.5	-29.4	24.9
Paperboard Containers & Boxes.....	575.9	-36.8	116.2
Rubber & Misc Plastics (a).....	8.8	-11.9	-5.0
Tires & Inner Tubes.....	1.6	12.9	+51.4
Miscellaneous Plastics Products.....	28.1	17.8	0.0
Petroleum (a).....	-2.5	10.2	1.2

Table 8
(Continued)

Industry	1989	1990	1991
Food Including Beverages (a).....	11.5	5.6	-11.4
Meat Products.....	3.8	-2.5	-4.6
Preserved Fruits and Vegetables.....	42.5	-0.1	-35.9
Grain Mill Products.....	25.1	20.2	-20.4
Sugar & Confectionary Products.....	-6.6	6.2	0.0
Beverages.....	-37.3	159.5	-55.2
Misc Food & Kindred Products.....	22.3	-26.6	0.7
Textiles (a).....	66.0	-6.5	0.0
Broadwoven Fabric Mills, Cotton.....	6.4	-32.9	20.0
Yarn and Thread Mills.....	33.3	NA	NA
Other Nondurables (a).....	-10.6	-22.2	-21.5
Tobacco.....	58.4	-15.7	-26.2
Apparel.....	18.6	-2.0	0.0
Printing and Publishing.....	-20.6	-25.6	-23.5
Nonmanufacturing			
Mining (a).....	1.5	-2.9	5.7
Metal Mining.....	-67.3	-5.0	-41.9
Coal Mining.....	2.2	-12.6	-0.5
Bituminous Coal.....	125.0	-40.7	0.0
Oil & Gas Extraction.....	7.2	-2.3	6.4
Oil & Gas Field Services.....	-43.8	NA	NA
Nonmetallic Minerals, ex Fuels.....	-11.1	8.3	7.7
Railroad (a).....	24.9	-13.1	-0.6
Air Transportation (a).....	38.0	5.8	18.4
Other Transportation (a).....	9.8	85.1	6.1
Trucking and Warehousing.....	9.7	85.1	6.1
Pipelines, ex Natural Gas.....	-31.9	13.2	14.1
Electric Utilities (a).....	4.0	0.4	-1.7
Gas & Other Utilities (a).....	-5.2	-6.7	0.5
Communication (a).....	1.0	4.3	-6.8
Telephone Communication.....	1.1	5.1	-6.8
Trade & Services (a).....	3.1	6.3	4.7
General Building Contractors.....	36.4	6.9	-16.5
Retail and Wholesale Trade.....	4.1	6.8	-3.1
General Merchandise Stores.....	4.2	15.2	-6.3
Department Stores.....	8.1	-3.8	3.9
Food Stores.....	5.0	-6.8	0.3
Finance.....	6.1	-12.0	3.5
Insurance Carriers.....	0.9	-22.3	2.8
Personal & Business Services.....	1.8	9.7	11.0
Hotels and Motels.....	-11.7	NA	NA
Business Services.....	-15.8	-44.6	-0.2
Computer and Data Processing Services.....	-16.2	-21.4	9.1
Miscellaneous Business Services.....	-3.4	-58.0	-11.3
Amusement & Recreation Services.....	5.2	3.0	24.7
Health Services.....	3.8	3.7	3.6
Services, nec.....	3.6	3.4	3.0

a. Percentage changes in this report are different than reported in Table I due to the treatment of outliers. In Table I, the dollar spending of 'outliers' is re-included when going from sample percentage change to the level of industry spending.

Respondents in the textile and rubber and plastic industries plan only modest investment increases this year, but "other" nondurable goods manufacturers—led by tobacco and apparel producers— expect to raise spending 14.7%.

Within the durable goods manufacturing sector, non-electrical machinery makers report a slight (0.3%) decline in capital budgets. While shipments and orders rose through 1988 and the first quarter of 1989, profits have come under pressure in the last two quarters. In addition, operating rates are nearly four percentage points below preferred levels. Respondents in the general industrial and metalworking machinery category were pessimistic about the duration of the current economic recovery and look for cutbacks in spending. Computer makers, meanwhile, intend to hold investment growth virtually the same as in 1988.

Electrical equipment manufacturers were surprisingly bullish in their investment projections, anticipating an aggregate increase of 10.5% for 1989 but with a sharply smaller share going for expansion projects. With factory operating rates well below preferred levels at the end of 1988 and weakening further in the first quarter of 1989, adding new capacity does appear unnecessary. But orders and profits were down only modestly in the first quarter, while shipments continued to rise, justifying some optimism. All product groups except household appliance makers plan increases in investment levels in 1989.

Following an estimated 11% investment cutback in 1988, the motor-vehicle industry appears ready to bounce back in 1989: respondents report a whopping 47% jump in spending this year, with expansion funds rising from a 10% to 15% share. With auto sales falling and inventories swelling despite a rash of dealer incentives this spring, however, automakers may have to rethink this strategy.

Elsewhere within durable goods, aircraft, ferrous and nonferrous metal, fabricated metal, and nonmetallic mineral producers all plan healthy capital spending gains in the current year. A strong investment hike by railroad equipment manufacturers is responsible for the projected 37% rise in the "other" durable goods category.

Among nonmanufacturers, communications companies report a surprisingly modest 1% investment increase for 1989. Airlines, in contrast, are placing aircraft orders at a dizzying clip, in line with the reported 38% spending surge. At the same time, railroads are planning to follow last year's 19% spending increase with another near-25% boost in 1989 as they continue to replace much of the nation's aging rolling stock.

Still saddled with excess generating capacity from the late 1970s, the electric utility industry cut capital investment 6.7% in 1987 and held to only a modest 0.8% increase in 1988. Industry respondents now plan a 5.1% spending hike for 1989 despite operating rates that remain 10 percentage points below preferred levels and continued problems in the nuclear sector. Gas utilities, for their part, intend to raise investment 10.7% this year. The mining sector's projection of a 1.6% increase reflects gains in the coal industry that outweigh cuts by oil and gas field services and metals mining companies.

APPENDIX

Table A.1
Composition of Investment
(Percent of total spending)

Industry	Actual 1988				Planned 1989			
	Buildings	Motor Vehicles	Computers/Office Eq.	Other Mach./Equipment	Buildings	Motor Vehicles	Computers/Office Eq.	Other Mach./Equipment
Blast Furnaces, Steel Works	6	2	2	90	6	3	3	88
Nonferrous Metals.....	19	0	0	81	9	3	0	88
Electrical Machinery.....	14	3	16	66	15	2	17	66
Nonelectrical Machinery.....	25	0	12	63	12	1	3	84
Motor Vehicles.....	7	0	1	92	10	0	1	89
Aircraft.....	44	11	4	41	34	11	3	52
Fabricated Metals.....	19	3	8	70	19	3	9	68
Instruments.....	21	1	9	69	25	1	6	68
Stone, Clay & Glass.....	16	13	1	70	13	12	1	74
Other Durables.....	7	3	3	86	10	4	4	82
TOTAL DURABLES.....	16	3	8	73	14	3	6	77
Chemicals.....	14	0	1	85	15	0	1	84
Paper.....	6	1	1	91	6	1	1	91
Rubber & Misc Plastics.....	3	0	2	94	7	0	3	90
Petroleum.....	5	0	4	92	3	0	4	92
Food Including Beverages...	21	2	15	61	22	2	14	62
Textiles.....	21	1	1	78	1	0	0	98
Other Nondurables.....	49	2	24	24	37	3	31	29
TOTAL NONDURABLES.....	19	1	9	71	16	1	10	73
ALL MANUFACTURING.....	18	2	6	72	15	2	8	75
Mining.....	1	0	1	98	0	0	1	98
Railroad.....	49	2	3	46	48	1	2	48
Air Transportation.....	20	10	8	62	18	11	8	63
Other Transportation.....	5	13	25	56	5	14	27	55
Electric Utilities.....	4	2	2	93	4	1	3	92
Gas & Other Utilities.....	16	3	6	74	13	3	3	81
Communication.....	10	1	16	72	9	2	15	75
Trade & Services.....	31	4	13	52	34	4	13	49
ALL NONMANUFACTURING.....	23	4	11	63	24	4	11	62
ALL BUSINESS.....	21	3	10	66	20	3	10	67

Table A.1
(Continued)

Industry	Planned 1990			
	Buildings	Motor Vehicles	Computers/ Office Eq.	Other Mach./ Equipment
Blast Furnaces, Steel Works	6	3	3	88
Nonferrous Metals	14	3	0	83
Electrical Machinery	11	3	14	72
Nonelectrical Machinery	13	1	3	84
Motor Vehicles	10	0	1	88
Aircraft	3	0	17	80
Fabricated Metals	19	4	8	68
Instruments	23	1	7	70
Stone, Clay & Glass	31	13	1	66
Other Durables	13	2	7	79
TOTAL DURABLES	13	2	7	78
Chemicals	15	0	1	84
Paper	6	1	2	91
Rubber & Misc Plastics	6	0	2	92
Petroleum	0	0	5	95
Food Including Beverages	22	2	14	62
Textiles	0	0	6	99
Other Nondurables	21	3	43	33
TOTAL NONDURABLES	12	1	12	75
ALL MANUFACTURING	12	2	9	76
Mining	1	1	1	98
Railroad	40	1	3	56
Air Transportation	17	14	5	64
Other Transportation	5	14	28	53
Electric Utilities	4	2	3	91
Gas & Other Utilities	25	4	3	67
Communication	10	1	15	73
Trade & Services	27	4	18	51
ALL NONMANUFACTURING	20	4	14	62
ALL BUSINESS	17	3	12	68

Table A.2
Capital Spending Plans for the Petroleum Industry
 (Millions of dollars)

Function	Level			
	1988	1989	1990	1991
Exploration and Production	25,780	20,383	23,443	24,344
Refining.....	2,193	2,566	2,998	3,024
Petrochemicals.....	1,589	2,201	2,129	2,030
Transportation (a).....	2,447	2,573	2,567	2,585
Marketing.....	4,895	4,885	4,948	4,846
Other (b).....	5,025	6,438	6,595	6,712
TOTAL.....	41,850	39,146	42,680	43,541

a. Includes oil pipelines; does not include gas pipelines.
 b. Includes coal mining.

Table A.3
Capital Spending Plans for the
Chemical Process Industries
 (Billions of dollars)

Industry	1988	1989	1990	1991
Chemicals.....	19.25	23.40	23.64	23.51
Petrochemicals (a).....	1.51	2.20	2.13	2.03
Paper & Pulp.....	11.24	15.89	16.10	11.90
Rubber & Plastics.....	3.66	4.20	3.71	3.64
Stone, Clay & Glass.....	3.59	4.31	4.21	4.10
Petroleum Refining.....	2.19	2.57	3.00	3.02
Nonferrous Metals.....	2.77	3.18	3.17	2.78
Coal Products.....	0.61	0.60	0.64	0.64
Food & Beverage.....	3.47	4.17	4.07	3.83
Textiles.....	0.42	0.46	0.31	0.37
Other CPI.....	2.11	2.42	2.26	2.06
Total CPI.....	51.83	63.41	63.23	57.77

a. Petrochemical expenditures are for the petroleum industry alone.

Table A.4
Capital Spending Plans for the Energy Industry
 (Millions of dollars)

Industry	1988	1989	1990	1991
Coal Mining (a).....	6,808	6,740	7,101	7,098
Electric Utilities.....	31,900	33,520	33,784	33,347
Gas & Other Utilities.....	14,603	16,164	14,616	14,692
Petroleum Industry.....	41,850	39,146	42,680	43,541
Exploration & Production	25,780	20,383	23,443	24,344
Transportation.....	2,447	2,673	2,567	2,585
Refining.....	2,193	2,566	2,998	3,024
Petrochemicals.....	1,509	2,201	2,129	2,030
Marketing.....	4,896	4,805	4,948	4,846
Other (a).....	5,025	6,438	6,595	6,712
Total Energy Industries....	95,161	95,570	98,181	98,678
Total All Industries.....	429,668	476,294	485,853	495,130
Energy Share (%).....	22	20	20	20

a. There is some duplication of investment in other petroleum and coal mining.

Table A.5
Plans for Investment in Employee Safety & Health
 (Millions of dollars)

Industry	Level			Percent Change	
	1988	1989	1990	1989	1990
Blast Furnaces, Steel Works.....	190.3	310.6	283.8	63.2	-8.6
Nonferrous Metals.....	134.9	146.6	150.5	8.7	2.7
Electrical Machinery.....	152.3	225.5	258.5	48.0	14.6
Nonelectrical Machinery.....	367.7	345.0	339.8	-6.2	-1.5
Motor Vehicles.....	57.1	65.8	55.4	15.2	-15.8
Aircraft (a).....	320.0	396.9	380.6	24.0	-4.1
Fabricated Metals.....	146.1	142.8	170.5	-2.3	19.4
Instruments.....	87.7	87.6	95.8	-0.1	9.3
Stone, Clay & Glass.....	93.1	125.5	129.8	34.8	3.4
Other Durables.....	94.9	234.3	113.0	146.8	-51.8
TOTAL DURABLES.....	1,644.1	2,080.5	1,977.6	26.5	-4.9
Chemicals.....	1,076.9	1,646.0	1,770.5	52.8	7.6
Paper.....	363.2	629.3	147.6	73.3	-76.5
Rubber & Misc Plastics.....	62.4	69.6	86.0	11.6	23.6
Petroleum.....	149.2	116.2	118.9	-22.1	2.4
Food including Beverages (a)	489.6	456.2	420.4	-6.8	-7.9
Textiles.....	22.0	46.4	16.6	110.6	-64.3
Other Nondurables.....	142.5	284.9	301.8	99.9	6.0
TOTAL NONDURABLES.....	2,305.9	3,248.7	2,862.0	40.9	-11.9
ALL MANUFACTURING.....	3,949.9	5,329.2	4,839.6	34.9	-9.2
Mining.....	89.0	109.4	100.1	22.9	-8.5
Railroad.....	68.8	89.9	78.4	30.7	-12.9
Air Transportation (b).....	72.5	100.1	105.8	38.0	5.8
Other Transportation.....	334.0	141.8	662.0	-57.6	366.8
Electric Utilities.....	121.3	138.1	137.0	13.9	-0.8
Gas & Other Utilities.....	15.3	21.2	17.2	39.0	-18.9
Communication.....	508.4	515.2	554.4	1.3	7.6
Trade & Services.....	3,367.5	4,147.5	4,612.5	23.2	11.2
ALL NONMANUFACTURING.....	4,576.8	5,263.2	6,267.4	15.0	19.1
ALL BUSINESS.....	8,526.8	10,592.5	11,107.0	24.2	4.9

a. DRI estimate for 1990.

b. DRI estimates for 1988-1990.

Table A.6
Employee Safety and Health Investment
as a Percent of Capital Spending by Industry

Industry	1988	1989	1990
Blast Furnaces, Steel Works	3.1	5.0	5.1
Nonferrous Metals	4.9	4.6	4.8
Electrical Machinery	0.8	1.1	1.3
Nonelectrical Machinery	2.4	2.3	2.2
Motor Vehicles	0.5	0.4	0.3
Aircraft (a)	9.3	9.5	9.5
Fabricated Metals	3.4	3.0	3.1
Instruments	2.6	2.1	2.2
Stone, Clay & Glass	2.6	2.9	3.1
Other Durables	1.0	1.0	0.9
TOTAL DURABLES	2.1	2.3	2.2
Chemicals	5.6	7.0	7.5
Paper	3.2	4.0	0.9
Rubber & Misc Plastics	1.6	1.7	2.3
Petroleum	0.7	0.6	0.6
Food Including Beverages (a)	3.8	3.0	2.8
Textiles	1.0	2.0	1.1
Other Nondurables	0.8	1.4	1.5
TOTAL NONDURABLES	2.6	3.2	2.9
ALL MANUFACTURING	2.4	2.8	2.5
Mining	0.7	0.9	0.8
Railroad	1.0	1.0	1.0
Air Transportation (b)	1.0	1.0	1.0
Other Transportation	4.7	1.8	4.6
Electric Utilities	0.4	0.4	0.4
Gas & Other Utilities	0.1	0.1	0.1
Communication	1.6	1.6	1.7
Trade & Services	2.2	2.5	2.8
ALL NONMANUFACTURING	1.7	1.9	2.1
ALL BUSINESS	2.0	2.2	2.3

a. DRI estimate for 1990.

b. DRI estimates for 1988-1990.

Table A.7
Survey Sample Size

Industry	Percentage of Capital Spending Covered by Survey
Blast Furnaces, Steel Works	10.3
Nonferrous Metals	28.3
Electrical Machinery	12.5
Nonelectrical Machinery	34.2
Motor Vehicles	69.8
Aircraft	39.0
Fabricated Metals	3.5
Instruments	5.3
Stone, Clay & Glass	10.8
Other Durables	8.3
TOTAL DURABLES	24.6
Chemicals	25.6
Paper	4.7
Rubber & Misc Plastics	4.8
Petroleum	78.3
Food Including Beverages	11.3
Textiles	3.1
Other Nondurables	3.5
TOTAL NONDURABLES	26.7
ALL MANUFACTURING	25.7
Mining	1.7
Railroad	19.7
Air Transportation	21.3
Other Transportation	0.9
Electric Utilities	44.4
Gas & Other Utilities	4.7
Communication	45.1
Trade & Services	3.2
ALL NONMANUFACTURING	13.9
ALL BUSINESS	18.4